

FCC CFR47 PART 22H, 24E, 27, 90S CERTIFICATION TEST REPORT FCC ID: 2AXDW-PNT

Product: KettyBot
Trade Mark: PUDU
Model Number: PNT
Family Model: N/A
Report No.: S21060901210006

Prepared for

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TEST RESULT CERTIFICATION

Applicant's name : SHENZHEN PUDU TECHNOLOGY CO., LTD.
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Manufacturer's Name: SHENZHEN PUDU TECHNOLOGY CO., LTD.
Address: Room 501, Building A, Block 1, Phase 1, Shenzhen International Inno Valley, Dashi 1st Road, Nanshan District, Shenzhen, China 518057
Product name: KettyBot
Model and/or type reference : PNT
Family Model: N/A
Standards: FCC CFR 47 Part 22H, Part 24E, Part 27, Part 90S
Test procedure : ANSI C63.26:2015
ANSI/TIA-603-E-2016

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test
Date (s) of performance of tests: Jun 10, 2021 ~Jul 19, 2021
Date of Issue : Jul 20, 2021
Test Result: Pass

Testing Engineer : (Allen Li)
Authorized Signatory : (Alex Li)

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	KettyBot
Trade Mark	PUDU
Model Name	PNT
Family Model	N/A
Model Difference	N/A
FCC ID:	2AXDW-PNT
Frequency Bands:	U.S. Bands: <input checked="" type="checkbox"/> LTE FDD Band 2,4,5,12,13,25,26,41,66
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 13 Uplink: 777MHz-787MHz, Downlink: 746MHz-756MHz; LTE FDD Band 25 Uplink: 1850MHz-1915MHz, Downlink: 1930MHz-1995MHz; LTE FDD Band 26 Uplink: 814MHz-849MHz, Downlink: 859MHz-894MHz; LTE FDD Band 41 Uplink: 2496MHz-2690MHz, LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
Type of Modulation:	QPSK/16QAM
Antenna:	FPCB Antenna
Antenna gain:	Band 2: 1.4dBi; Band 4: 2.85dBi ; Band 5: 0.81dBi ; Band 12:0.28dBi ;Band 13:0.81dBi; Band 25: 1.74dBi; Band 26: 0.81dBi; Band 41: 1.89dBi; Band 66: 2.85dBi;
Power Supply:	DC 25.55V/25600mAh from battery or DC 29V from Adapter.
Adapter:	Model: FY29008000 Input: 100-240V~50/60Hz 3A 300VA Output: 29.0V---8.0A 232.0W
Extreme Vol. Limits:	DC 21.42V to DC 28.98V (Nominal DC 25.55V) (Note 1)
HW Version	B00

SW Version	9.1.0.6
** Note1: The High Voltage DC 28.98V and Low Voltage 21.42V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AXDW-PNT** filing to comply with the FCC Part 22H&24E&27&90S.

1.3 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI/TIA-603-E-2016, FCC CFR 47 Part 2, Part 22, Part 24, Part 27, Part 90S,ANSI C63.26:2015.

1.4 TEST FACILITY

The test site used to collect the radiated data is located at:

ShenZhen NTEK Testing Technology Co., Ltd.

1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao’an District, Shenzhen 518126 P.R.China.

The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.26:2015& ANSI C63.4: 2014.

FCC Registration No.:463705

IC Registration No.:9270A-1,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.5dB

1.5 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with EUT intended for FCC grant together.

1.6 WORST-CASE CONFIGURATION AND MODE

The worst-case scenario for all measurements is based on the investigation results.

The device has LTE Bands of: Band 2, Band 4, Band 5, Band 12, Band 13, Band 25, Band 26, Band 41, Band 66.

The RB Size was selected to measure for peak or average ERP and EIRP, which was based on the conducted power verification baseline data.

For the fundamental investigation of radiated emissions, the EUT is investigated for vertical and horizontal antenna orientations and X Y and Z orientations of the EUT alone. After the investigations

the worst case was determined to be at X orientation for all LTE bands.

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

2.3 CONFIGURATION OF EUT SYSTEM

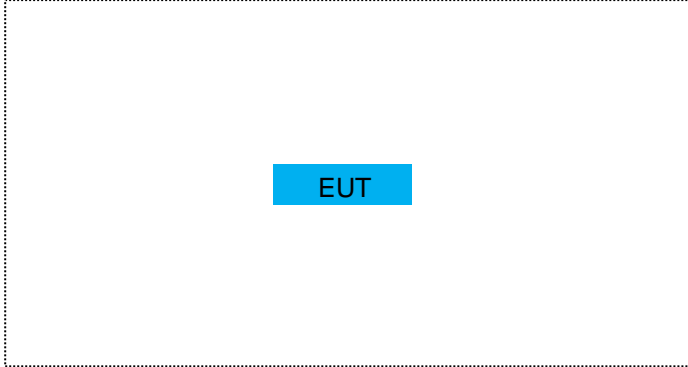
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	KettyBot	PNT	FCC ID: 2AXDW-PNT	EUT

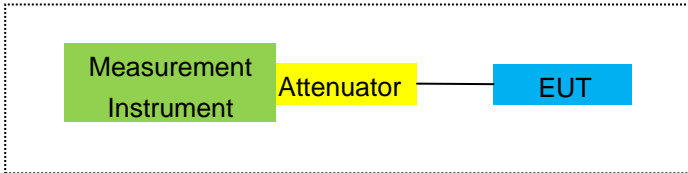
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

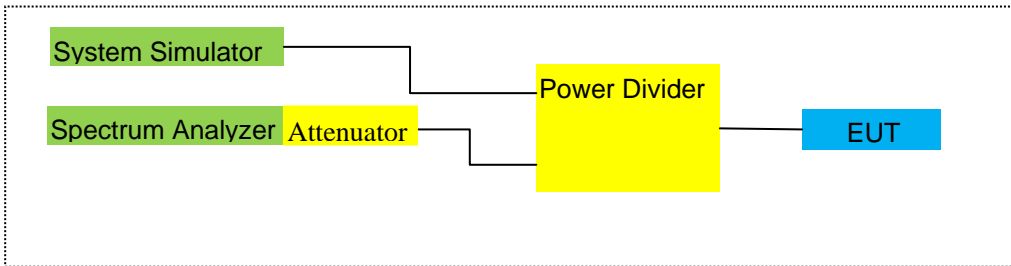
For Radiated Test Cases



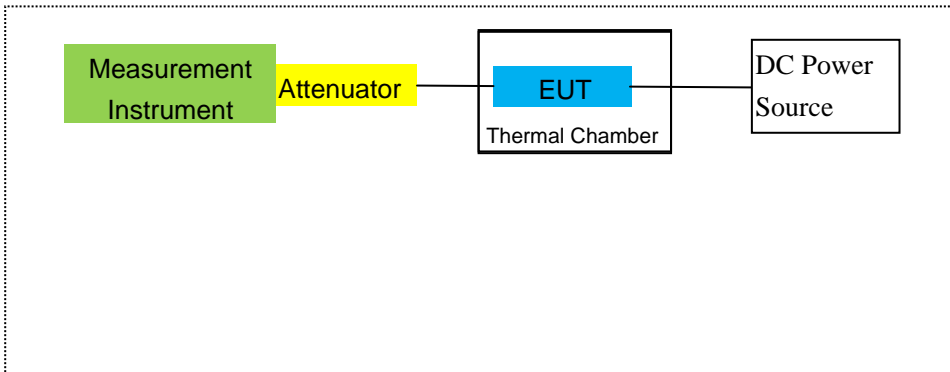
For Conducted Output Power



For Peak-to Average Ratio, Occupied Bandwidth, Conducted Band edge and Conducted Spurious Emission



For Frequency Stability



Note: EUT built-in battery-powered, the battery is fully-charged.

3. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2020.07.13 2021.07.01	2021.07.12 2022.06.30	1 year
2	Test Receiver	R&S	ESPI	101318	2021.04.27	2022.04.26	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2021.03.29	2022.03.28	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11	2023.05.10	3 year
5	Horn Antenna	EM	EM-AH-1018 0	2011071402	2021.03.29	2022.03.28	1 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2020.07.13 2021.07.01	2021.07.12 2022.06.30	1 year
7	Amplifier	EM	EM-30180	060538	2020.07.13 2021.07.01	2021.07.12 2022.06.30	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2021.04.27	2022.04.26	1 year
9	Power Meter	R&S	NRVS	100696	2020.07.13 2021.07.01	2021.07.12 2022.06.30	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.0 5	2021.04.27	2022.04.26	1 year
11	Test Cable	N/A	R-01	N/A	2019.08.06	2022.08.05	3 year
12	Test Cable	N/A	R-02	N/A	2019.08.06	2022.08.05	3 year
13	Test Cable	N/A	R-03	N/A	2019.06.28	2022.06.27	3 year
14	Test Receiver	R&S	ESCI	101160	2021.04.27	2022.04.26	1 year
15	LISN	R&S	ENV216	101313	2021.04.27	2022.04.26	1 year
16	LISN	EMCO	3816/2	00042990	2021.04.27	2022.04.26	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2021.04.27	2022.04.26	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2021.04.27	2022.04.26	1 year
19	Test Cable	N/A	C01	N/A	2020.05.11	2023.05.10	3 year
20	Test Cable	N/A	C02	N/A	2020.05.11	2023.05.10	3 year
21	Test Cable	N/A	C03	N/A	2020.05.11	2023.05.10	3 year
22	Attenuator	MCE	24-10-34	BN9258	2021.04.27	2022.04.26	1 year
23	Spectrum Analyzer	agilent	e4440a	us44300399	2021.04.27	2022.04.26	1 year
24	test receiver	R&S	ESCI	a0304218	2021.04.27	2022.04.26	1 year
25	Communication Tester	R&S	CMU200	A0304247	2020.07.13 2021.07.01	2021.07.12 2022.06.30	1 year

26	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2021.04.27	2022.04.26	1 year
27	DC Power Source	N/A	PS-6005D	2017040292 3	2020.05.11	2023.05.10	3 year
28	PSG Analog Signal Generator	Agilent	E8257D	MY51110112	2020.07.13 2021.07.01	2021.07.12 2022.06.30	1 year
29	Communication Tester	R&S	CMW500	148500	2020.08.07	2021.08.06	1 year

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& DC Power Source which is scheduled for calibration every 3 years.

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

All LTE bands conducted power peak and average are obtained from the CMW500 telecommunication test set. The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".3

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4, 10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3	13	10	Table 6.2.4-2	Table 6.2.4-2
	6.6.3.3.2				
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23 ¹	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

MODES TESTED

- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 12
- LTE Band 13
- LTE Band 25,
- LTE Band 26,
- LTE Band 41
- LTE Band 66

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53, and §90.691

FCC: §22.359

LIMITS

FCC: §22.917, §24.238, §27.53

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

(m)(4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. Show citation box.

(c)(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;

FCC: §90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

TEST PROCEDURE

The transmitter output was connected to a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency

Set a marker to point the corresponding band edge frequency in each test case.

Set resolution bandwidth to at least 1% of emission bandwidth.

MODES TESTED

- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 12
- LTE Band 13
- LTE Band 25,
- LTE Band 26,
- LTE Band 41
- LTE Band 66

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53 and §90.691

LIMITS

1. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.
2. The Band 7/41 emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $55 + 10 \log (P)$ dB.

TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

-
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

MODES TESTED

- LTE Band 2/4/5/12/13/25/26/41/66
-

7.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

Test data reference attachment.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §27.50 and §90.635

LIMITS:

- 22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.
- 27.50 (c) (10) the following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band, the portable stations (hand-held devices) are limited to 3 watts ERP.
- 27.50 (b)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.
- 27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.
- 27.50 (h)(2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.
- 90.635(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

KDB 971168 v02r01 RF power output using broadband peak and average power meter method.

KDB 971168 D01 Power Meas License Digital Systems v02r01, "Measurement Guidance for Certification of Licensed Digital Transmitters"

MODES TESTED

- LTE Band 2/4/5/12/13/25/26/41/66

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2										
Mode	RB/RB SIZE	Frequency	Result						Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP			
							Average (mW)			
1.4MHz Band QPSK	1/#Mid	1850.7	-3.53	3.76	28.24	20.95	124.451	Horizontal	Pass	
		1880	-2.10	3.91	28.22	22.21	166.341	Horizontal	Pass	
		1909.3	-3.75	3.93	28.20	20.52	112.720	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	1851.5	-2.35	3.77	28.23	22.11	162.555	Horizontal	Pass	
		1880	-2.65	3.91	28.24	21.68	147.231	Horizontal	Pass	
		1908.5	-3.11	3.94	28.25	21.20	131.826	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	1852.5	-3.48	3.77	28.31	21.06	127.644	Horizontal	Pass	
		1880	-2.89	3.91	28.22	21.42	138.676	Horizontal	Pass	
		1907.5	-1.91	3.94	28.20	22.35	171.791	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	1855	-2.75	3.79	28.33	21.79	151.008	Horizontal	Pass	
		1880	-2.70	3.95	28.22	21.57	143.549	Horizontal	Pass	
		1905	-2.04	3.97	28.19	22.18	165.196	Horizontal	Pass	
15.0MHz Band QPSK	1/#Mid	1857.5	-3.41	3.79	28.34	21.14	130.017	Horizontal	Pass	
		1880	-1.86	3.95	28.22	22.41	174.181	Horizontal	Pass	
		1902.5	-1.74	3.97	28.18	22.47	176.604	Horizontal	Pass	
20.0MHz Band QPSK	1/#Mid	1860	-2.21	3.81	28.35	22.33	171.002	Horizontal	Pass	
		1880	-3.23	3.96	28.22	21.03	126.765	Horizontal	Pass	
		1900	-2.36	4.00	28.16	21.80	151.356	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	1850.7	-2.81	3.76	28.24	21.67	146.893	Vertical	Pass	
		1880	-1.94	3.91	28.22	22.37	172.584	Vertical	Pass	
		1909.3	-2.71	3.93	28.20	21.56	143.219	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	1851.5	-3.18	3.77	28.23	21.28	134.276	Vertical	Pass	
		1880	-2.54	3.91	28.24	21.79	151.008	Vertical	Pass	
		1908.5	-1.73	3.94	28.25	22.58	181.134	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	1852.5	-2.50	3.77	28.31	22.04	159.956	Vertical	Pass	
		1880	-1.88	3.91	28.22	22.43	174.985	Vertical	Pass	
		1907.5	-1.70	3.94	28.20	22.56	180.302	Vertical	Pass	
10.0MHz	1/#Mid	1855	-2.81	3.79	28.33	21.73	148.936	Vertical	Pass	

Band		1880	-3.48	3.95	28.22	20.79	119.950	Vertical	Pass
QPSK		1905	-3.74	3.97	28.19	20.48	111.686	Vertical	Pass
15.0MHz		1857.5	-3.69	3.79	28.34	20.86	121.899	Vertical	Pass
Band	1/#Mid	1880	-2.83	3.95	28.22	21.44	139.316	Vertical	Pass
QPSK		1902.5	-3.18	3.97	28.18	21.03	126.765	Vertical	Pass
20.0MHz		1860	-3.61	3.81	28.35	20.93	123.880	Vertical	Pass
Band	1/#Mid	1880	-3.62	3.96	28.22	20.64	115.878	Vertical	Pass
QPSK		1900	-1.45	4.00	28.16	22.71	186.638	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP		
							Average (mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-3.08	3.76	28.24	21.40	138.038	Horizontal	Pass
		1880	-2.49	3.91	28.22	21.82	152.055	Horizontal	Pass
		1909.3	-2.27	3.93	28.20	22.00	158.489	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-3.01	3.77	28.23	21.45	139.637	Horizontal	Pass
		1880	-2.46	3.91	28.24	21.87	153.815	Horizontal	Pass
		1908.5	-2.42	3.94	28.25	21.89	154.525	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-2.86	3.77	28.31	21.68	147.231	Horizontal	Pass
		1880	-2.60	3.91	28.22	21.71	148.252	Horizontal	Pass
		1907.5	-2.21	3.94	28.20	22.05	160.325	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-2.91	3.79	28.33	21.63	145.546	Horizontal	Pass
		1880	-2.51	3.95	28.22	21.76	149.968	Horizontal	Pass
		1905	-2.05	3.97	28.19	22.17	164.816	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-2.76	3.79	28.34	21.79	151.008	Horizontal	Pass
		1880	-2.56	3.95	28.22	21.71	148.252	Horizontal	Pass
		1902.5	-2.50	3.97	28.18	21.71	148.252	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-2.65	3.81	28.35	21.89	154.525	Horizontal	Pass
		1880	-2.01	3.96	28.22	22.25	167.880	Horizontal	Pass
		1900	-2.19	4.00	28.16	21.97	157.398	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-3.02	3.76	28.24	21.46	139.959	Vertical	Pass
		1880	-2.24	3.91	28.22	22.07	161.065	Vertical	Pass
		1909.3	-2.13	3.93	28.20	22.14	163.682	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-2.77	3.77	28.23	21.69	147.571	Vertical	Pass
		1880	-2.63	3.91	28.24	21.70	147.911	Vertical	Pass
		1908.5	-2.24	3.94	28.25	22.07	161.065	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-2.52	3.77	28.31	22.02	159.221	Vertical	Pass
		1880	-2.83	3.91	28.22	21.48	140.605	Vertical	Pass
		1907.5	-2.06	3.94	28.20	22.20	165.959	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-2.38	3.79	28.33	22.16	164.437	Vertical	Pass
		1880	-2.69	3.95	28.22	21.58	143.880	Vertical	Pass
		1905	-2.74	3.97	28.19	21.48	140.605	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-2.43	3.79	28.34	22.12	162.930	Vertical	Pass
		1880	-3.31	3.95	28.22	20.96	124.738	Vertical	Pass
		1902.5	-2.07	3.97	28.18	22.14	163.682	Vertical	Pass

20.0MHz Band 16 QAM	1/#Mid	1860	-1.99	3.81	28.35	22.55	179.887	Vertical	Pass
		1880	-2.05	3.96	28.22	22.21	166.341	Vertical	Pass
		1900	-2.13	4.00	28.16	22.03	159.588	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average (dBm)	Average (mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-1.98	3.12	27.58	22.48	177.011	Horizontal	Pass
		1732.5	-1.69	3.27	27.61	22.65	184.077	Horizontal	Pass
		1754.3	-2.14	3.29	27.63	22.20	165.959	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.37	3.13	27.61	21.11	129.122	Horizontal	Pass
		1732.5	-3.58	3.27	27.61	20.76	119.124	Horizontal	Pass
		1753.5	-3.87	3.30	27.62	20.45	110.917	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.55	3.13	27.63	21.95	156.675	Horizontal	Pass
		1732.5	-3.93	3.27	27.61	20.41	109.901	Horizontal	Pass
		1752.5	-1.60	3.30	27.60	22.70	186.209	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-2.48	3.15	27.64	22.01	158.855	Horizontal	Pass
		1732.5	-1.77	3.31	27.61	22.53	179.061	Horizontal	Pass
		1750	-1.73	3.33	27.59	22.53	179.061	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-3.32	3.15	27.65	21.18	131.220	Horizontal	Pass
		1732.5	-1.64	3.31	27.61	22.66	184.502	Horizontal	Pass
		1747.5	-2.04	3.33	27.57	22.20	165.959	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-3.43	3.17	27.66	21.06	127.644	Horizontal	Pass
		1732.5	-1.75	3.32	27.61	22.54	179.473	Horizontal	Pass
		1745	-2.08	3.36	27.56	22.12	162.930	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-1.79	3.12	27.58	22.67	184.927	Vertical	Pass
		1732.5	-3.00	3.27	27.61	21.34	136.144	Vertical	Pass
		1754.3	-3.40	3.29	27.63	20.94	124.165	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-1.74	3.13	27.61	22.74	187.932	Vertical	Pass
		1732.5	-2.08	3.27	27.61	22.26	168.267	Vertical	Pass
		1753.5	-1.94	3.30	27.62	22.38	172.982	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-3.34	3.13	27.63	21.16	130.617	Vertical	Pass
		1732.5	-2.46	3.27	27.61	21.88	154.170	Vertical	Pass
		1752.5	-3.37	3.30	27.60	20.93	123.880	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.17	3.15	27.64	21.32	135.519	Vertical	Pass
		1732.5	-3.29	3.31	27.61	21.01	126.183	Vertical	Pass
		1750	-1.97	3.33	27.59	22.29	169.434	Vertical	Pass

15.0MHz		1717.5	-3.23	3.15	27.65	21.27	133.968	Vertical	Pass
Band	1/#Mid	1732.5	-2.66	3.31	27.61	21.64	145.881	Vertical	Pass
QPSK		1747.5	-3.00	3.33	27.57	21.24	133.045	Vertical	Pass
20.0MHz		1720	-2.22	3.17	27.66	22.27	168.655	Vertical	Pass
Band	1/#Mid	1732.5	-1.97	3.32	27.61	22.32	170.608	Vertical	Pass
QPSK		1745	-1.41	3.36	27.56	22.79	190.108	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss	Antenna Gain	Max. EIRP	Max. EIRP		
			(dBm)			Average	Average		
						(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-2.77	3.12	27.58	21.69	147.571	Horizontal	Pass
		1732.5	-3.04	3.27	27.61	21.30	134.896	Horizontal	Pass
		1754.3	-2.89	3.29	27.63	21.45	139.637	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-2.81	3.13	27.61	21.67	146.893	Horizontal	Pass
		1732.5	-4.23	3.27	27.61	20.11	102.565	Horizontal	Pass
		1753.5	-2.96	3.30	27.62	21.36	136.773	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.11	3.13	27.63	21.39	137.721	Horizontal	Pass
		1732.5	-3.16	3.27	27.61	21.18	131.220	Horizontal	Pass
		1752.5	-2.27	3.30	27.60	22.03	159.588	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-2.74	3.15	27.64	21.75	149.624	Horizontal	Pass
		1732.5	-3.26	3.31	27.61	21.04	127.057	Horizontal	Pass
		1750	-3.43	3.33	27.59	20.83	121.060	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.16	3.15	27.65	21.34	136.144	Horizontal	Pass
		1732.5	-2.76	3.31	27.61	21.54	142.561	Horizontal	Pass
		1747.5	-2.56	3.33	27.57	21.68	147.231	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-3.08	3.17	27.66	21.41	138.357	Horizontal	Pass
		1732.5	-2.04	3.32	27.61	22.25	167.880	Horizontal	Pass
		1745	-2.94	3.36	27.56	21.26	133.660	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-2.50	3.12	27.58	21.96	157.036	Vertical	Pass
		1732.5	-2.20	3.27	27.61	22.14	163.682	Vertical	Pass
		1754.3	-2.73	3.29	27.63	21.61	144.877	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.32	3.13	27.61	21.16	130.617	Vertical	Pass
		1732.5	-3.85	3.27	27.61	20.49	111.944	Vertical	Pass
		1753.5	-3.09	3.30	27.62	21.23	132.739	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.15	3.13	27.63	21.35	136.458	Vertical	Pass
		1732.5	-3.00	3.27	27.61	21.34	136.144	Vertical	Pass
		1752.5	-3.17	3.30	27.60	21.13	129.718	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-2.63	3.15	27.64	21.86	153.462	Vertical	Pass
		1732.5	-2.81	3.31	27.61	21.49	140.929	Vertical	Pass
		1750	-2.10	3.33	27.59	22.16	164.437	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-2.47	3.15	27.65	22.03	159.588	Vertical	Pass
		1732.5	-3.02	3.31	27.61	21.28	134.276	Vertical	Pass
		1747.5	-1.99	3.33	27.57	22.25	167.880	Vertical	Pass
20.0MHz	1/#Mid	1720	-2.07	3.17	27.66	22.42	174.582	Vertical	Pass

Band 16		1732.5	-2.69	3.32	27.61	21.60	144.544	Vertical	Pass
QAM		1745	-2.14	3.36	27.56	22.06	160.694	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	824.7	8.79	2.01	19.68	2.15	24.31	269.774	Horizontal	Pass
		836.5	8.24	2.01	19.77	2.15	23.85	242.661	Horizontal	Pass
		848.3	8.64	2.02	19.82	2.15	24.29	268.534	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	8.39	2.01	19.70	2.15	23.93	247.172	Horizontal	Pass
		836.5	8.37	2.01	19.77	2.15	23.98	250.035	Horizontal	Pass
		847.5	8.71	2.02	19.81	2.15	24.35	272.270	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	8.20	2.01	19.71	2.15	23.75	237.137	Horizontal	Pass
		836.5	8.71	2.01	19.77	2.15	24.32	270.396	Horizontal	Pass
		846.5	8.05	2.02	19.79	2.15	23.67	232.809	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	8.37	2.01	19.73	2.15	23.94	247.742	Horizontal	Pass
		836.5	8.65	2.01	19.77	2.15	24.26	266.686	Horizontal	Pass
		844	8.66	2.02	19.78	2.15	24.27	267.301	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	9.08	2.01	19.68	2.15	24.60	288.403	Vertical	Pass
		836.5	8.06	2.01	19.77	2.15	23.67	232.809	Vertical	Pass
		848.3	8.39	2.02	19.82	2.15	24.04	253.513	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	8.43	2.01	19.70	2.15	23.97	249.459	Vertical	Pass
		836.5	8.34	2.01	19.77	2.15	23.95	248.313	Vertical	Pass
		847.5	8.11	2.02	19.81	2.15	23.75	237.137	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	8.88	2.01	19.71	2.15	24.43	277.332	Vertical	Pass
		836.5	8.00	2.01	19.77	2.15	23.61	229.615	Vertical	Pass
		846.5	8.98	2.02	19.79	2.15	24.60	288.403	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	8.70	2.01	19.73	2.15	24.27	267.301	Vertical	Pass
		836.5	9.01	2.01	19.77	2.15	24.62	289.734	Vertical	Pass
		844	8.36	2.02	19.78	2.15	23.97	249.459	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)				Average	Average		
							(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	824.7	8.50	2.01	19.68	2.15	24.02	252.348	Horizontal	Pass
		836.5	7.98	2.01	19.77	2.15	23.59	228.560	Horizontal	Pass
		848.3	7.79	2.02	19.82	2.15	23.44	220.800	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	7.64	2.01	19.70	2.15	23.18	207.970	Horizontal	Pass
		836.5	8.21	2.01	19.77	2.15	23.82	240.991	Horizontal	Pass
		847.5	8.25	2.02	19.81	2.15	23.89	244.906	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	7.81	2.01	19.71	2.15	23.36	216.770	Horizontal	Pass
		836.5	7.93	2.01	19.77	2.15	23.54	225.944	Horizontal	Pass
		846.5	8.15	2.02	19.79	2.15	23.77	238.232	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	8.07	2.01	19.73	2.15	23.64	231.206	Horizontal	Pass
		836.5	7.70	2.01	19.77	2.15	23.31	214.289	Horizontal	Pass
		844	7.43	2.02	19.78	2.15	23.04	201.372	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	8.04	2.01	19.68	2.15	23.56	226.986	Vertical	Pass
		836.5	6.97	2.01	19.77	2.15	22.58	181.134	Vertical	Pass
		848.3	7.46	2.02	19.82	2.15	23.11	204.644	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	7.18	2.01	19.70	2.15	22.72	187.068	Vertical	Pass
		836.5	7.78	2.01	19.77	2.15	23.39	218.273	Vertical	Pass
		847.5	7.57	2.02	19.81	2.15	23.21	209.411	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	7.21	2.01	19.71	2.15	22.76	188.799	Vertical	Pass
		836.5	7.83	2.01	19.77	2.15	23.44	220.800	Vertical	Pass
		846.5	7.80	2.02	19.79	2.15	23.42	219.786	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	7.60	2.01	19.73	2.15	23.17	207.491	Vertical	Pass
		836.5	8.57	2.01	19.77	2.15	24.18	261.818	Vertical	Pass
		844	7.33	2.02	19.78	2.15	22.94	196.789	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.5 LTE BAND 12

Radiated Power (ERP) for Band 12											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction	Max. EIRP	Max. EIRP			
			(dBm)			(dB)	Average	Average			
						(dBm)	(mW)				
1.4MHz Band QPSK	1/#Mid	699.7	8.03	1.91	19.21	2.15	23.18	207.970	Vertical	Pass	
		707.5	6.99	1.91	19.26	2.15	22.19	165.577	Vertical	Pass	
		715.3	6.06	1.93	19.34	2.15	21.32	135.519	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	700.5	7.54	1.91	19.21	2.15	22.69	185.780	Vertical	Pass	
		707.5	6.95	1.91	19.26	2.15	22.15	164.059	Vertical	Pass	
		714.5	6.44	1.93	19.34	2.15	21.70	147.911	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	701.5	6.70	1.91	19.23	2.15	21.87	153.815	Vertical	Pass	
		707.5	7.80	1.91	19.26	2.15	23.00	199.526	Vertical	Pass	
		713.5	6.44	1.92	19.33	2.15	21.70	147.911	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	704	7.30	1.91	19.25	2.15	22.49	177.419	Vertical	Pass	
		707.5	7.69	1.91	19.26	2.15	22.89	194.536	Vertical	Pass	
		711	7.52	1.92	19.32	2.15	22.77	189.234	Vertical	Pass	
1.4MHz Band QPSK	1/#Mid	699.7	7.40	1.91	19.21	2.15	22.55	179.887	Horizontal	Pass	
		707.5	6.88	1.91	19.26	2.15	22.08	161.436	Horizontal	Pass	
		715.3	7.03	1.93	19.34	2.15	22.29	169.434	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	700.5	7.36	1.91	19.21	2.15	22.51	178.238	Horizontal	Pass	
		707.5	7.40	1.91	19.26	2.15	22.60	181.970	Horizontal	Pass	
		714.5	7.01	1.93	19.34	2.15	22.27	168.655	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	701.5	7.47	1.91	19.23	2.15	22.64	183.654	Horizontal	Pass	
		707.5	7.49	1.91	19.26	2.15	22.69	185.780	Horizontal	Pass	
		713.5	7.76	1.92	19.33	2.15	23.02	200.447	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	704	8.13	1.91	19.25	2.15	23.32	214.783	Horizontal	Pass	
		707.5	6.38	1.91	19.26	2.15	21.58	143.880	Horizontal	Pass	
		711	6.52	1.92	19.32	2.15	21.77	150.314	Horizontal	Pass	

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			(dB)	Average	Average		
						(dB)	(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	699.7	7.70	1.91	19.21	2.15	22.85	192.752	Vertical	Pass
		707.5	7.57	1.91	19.26	2.15	22.77	189.234	Vertical	Pass
		715.3	6.75	1.93	19.34	2.15	22.01	158.855	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	8.14	1.91	19.21	2.15	23.29	213.304	Vertical	Pass
		707.5	7.96	1.91	19.26	2.15	23.16	207.014	Vertical	Pass
		714.5	7.27	1.93	19.34	2.15	22.53	179.061	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	7.80	1.91	19.23	2.15	22.97	198.153	Vertical	Pass
		707.5	7.99	1.91	19.26	2.15	23.19	208.449	Vertical	Pass
		713.5	8.08	1.92	19.33	2.15	23.34	215.774	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	8.31	1.91	19.25	2.15	23.50	223.872	Vertical	Pass
		707.5	8.05	1.91	19.26	2.15	23.25	211.349	Vertical	Pass
		711	8.53	1.92	19.32	2.15	23.78	238.781	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	7.92	1.91	19.21	2.15	23.07	202.768	Horizontal	Pass
		707.5	8.31	1.91	19.26	2.15	23.51	224.388	Horizontal	Pass
		715.3	7.91	1.93	19.34	2.15	23.17	207.491	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	8.39	1.91	19.21	2.15	23.54	225.944	Horizontal	Pass
		707.5	8.35	1.91	19.26	2.15	23.55	226.464	Horizontal	Pass
		714.5	8.31	1.93	19.34	2.15	23.57	227.510	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	8.00	1.91	19.23	2.15	23.17	207.491	Horizontal	Pass
		707.5	8.13	1.91	19.26	2.15	23.33	215.278	Horizontal	Pass
		713.5	6.85	1.92	19.33	2.15	22.11	162.555	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	7.60	1.91	19.25	2.15	22.79	190.108	Horizontal	Pass
		707.5	8.66	1.91	19.26	2.15	23.86	243.220	Horizontal	Pass
		711	8.20	1.92	19.32	2.15	23.45	221.309	Horizontal	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.6 LTE BAND 13

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)				Average	Average		
							(dBm)	(mW)		
5.0MHz Band QPSK	1/#Mid	779.5	5.14	1.91	19.23	2.15	20.31	107.399	Vertical	Pass
		782	5.59	1.91	19.26	2.15	20.79	119.950	Vertical	Pass
		784.5	6.10	1.92	19.33	2.15	21.36	136.773	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	782	4.05	1.91	19.25	2.15	19.24	83.946	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	779.5	5.76	1.91	19.23	2.15	20.93	123.880	Horizontal	Pass
		782	6.22	1.91	19.26	2.15	21.42	138.676	Horizontal	Pass
		784.5	5.45	1.92	19.33	2.15	20.71	117.761	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	782	6.33	1.91	19.25	2.15	21.52	141.906	Horizontal	Pass

Radiated Power (ERP) for Band 13											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP	Max. EIRP			
			(dBm)				Average	Average			
							(dBm)	(mW)			
5.0MHz Band 16 QAM	1/#Mid	779.5	5.69	1.91	19.23	2.15	20.86	121.899	Vertical	Pass	
		782	5.98	1.91	19.26	2.15	21.18	131.220	Vertical	Pass	
		784.5	5.63	1.92	19.33	2.15	20.89	122.744	Vertical	Pass	
10.0MHz Band 16 QAM	1/#Mid	782	6.02	1.91	19.25	2.15	21.21	132.130	Vertical	Pass	
5.0MHz Band 16 QAM	1/#Mid	779.5	4.56	1.91	19.23	2.15	19.73	93.972	Horizontal	Pass	
		782	5.55	1.91	19.26	2.15	20.75	118.850	Horizontal	Pass	
		784.5	5.47	1.92	19.33	2.15	20.73	118.304	Horizontal	Pass	
10.0MHz Band 16 QAM	1/#Mid	782	5.07	1.91	19.25	2.15	20.26	106.170	Horizontal	Pass	

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.7 LTE BAND 25

Radiated Power (EIRP) for Band 25									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average (dBm)	Average (mW)		
1.4MHz Band QPSK	1/#Mid	1850.7	-0.48	3.12	27.58	23.98	250.035	Horizontal	Pass
		1882,5	-0.20	3.27	27.61	24.14	259.418	Horizontal	Pass
		1914.3	-0.28	3.29	27.63	24.06	254.683	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-1.57	3.13	27.61	22.91	195.434	Horizontal	Pass
		1882,5	-2.09	3.27	27.61	22.25	167.880	Horizontal	Pass
		1913.5	-2.09	3.30	27.62	22.23	167.109	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-1.04	3.13	27.63	23.46	221.820	Horizontal	Pass
		1882,5	-2.41	3.27	27.61	21.93	155.955	Horizontal	Pass
		1912.5	-0.29	3.30	27.60	24.01	251.768	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-1.02	3.15	27.64	23.47	222.331	Horizontal	Pass
		1882,5	-0.36	3.31	27.61	23.94	247.742	Horizontal	Pass
		1910	-0.07	3.33	27.59	24.19	262.422	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-1.38	3.15	27.65	23.12	205.116	Horizontal	Pass
		1882,5	-0.26	3.31	27.61	24.04	253.513	Horizontal	Pass
		1907.5	-0.47	3.33	27.57	23.77	238.232	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-1.77	3.17	27.66	22.72	187.068	Horizontal	Pass
		1882,5	-0.10	3.32	27.61	24.19	262.422	Horizontal	Pass
		1905	-0.46	3.36	27.56	23.74	236.592	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-0.10	3.12	27.58	24.36	272.898	Vertical	Pass
		1882,5	-1.34	3.27	27.61	23.00	199.526	Vertical	Pass
		1914.3	-1.55	3.29	27.63	22.79	190.108	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-0.49	3.13	27.61	23.99	250.611	Vertical	Pass
		1882,5	-0.41	3.27	27.61	23.93	247.172	Vertical	Pass
		1913.5	-0.40	3.30	27.62	23.92	246.604	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-1.87	3.13	27.63	22.63	183.231	Vertical	Pass
		1882,5	-0.70	3.27	27.61	23.64	231.206	Vertical	Pass
		1912.5	-1.53	3.30	27.60	22.77	189.234	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-1.63	3.15	27.64	22.86	193.197	Vertical	Pass
		1882,5	-2.02	3.31	27.61	22.28	169.044	Vertical	Pass
		1910	-0.36	3.33	27.59	23.90	245.471	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1857.5	-1.37	3.15	27.65	23.13	205.589	Vertical	Pass
		1882,5	-1.08	3.31	27.61	23.22	209.894	Vertical	Pass
		1907.5	-1.11	3.33	27.57	23.13	205.589	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1860	-0.86	3.17	27.66	23.63	230.675	Vertical	Pass
		1882,5	0.18	3.32	27.61	24.47	279.898	Vertical	Pass
		1905	0.13	3.36	27.56	24.33	271.019	Vertical	Pass

Radiated Power (EIRP) for Band 25										
Mode	RB/RB SIZE	Frequency	Result						Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP			
			(dBm)			Average	Average			
						(dBm)	(mW)			
1.4MHz Band 16 QAM	1/#Mid	1850.7	-1.60	3.12	27.58	22.86	193.197	Horizontal	Pass	
		1882,5	-1.92	3.27	27.61	22.42	174.582	Horizontal	Pass	
		1914.3	-1.59	3.29	27.63	22.75	188.365	Horizontal	Pass	
3.0MHz Band 16 QAM	1/#Mid	1851.5	-1.88	3.13	27.61	22.60	181.970	Horizontal	Pass	
		1882,5	-2.83	3.27	27.61	21.51	141.579	Horizontal	Pass	
		1913.5	-1.89	3.30	27.62	22.43	174.985	Horizontal	Pass	
5.0MHz Band 16 QAM	1/#Mid	1852.5	-1.87	3.13	27.63	22.63	183.231	Horizontal	Pass	
		1882,5	-2.28	3.27	27.61	22.06	160.694	Horizontal	Pass	
		1912.5	-1.19	3.30	27.60	23.11	204.644	Horizontal	Pass	
10.0MHz Band 16 QAM	1/#Mid	1855	-1.73	3.15	27.64	22.76	188.799	Horizontal	Pass	
		1882,5	-1.82	3.31	27.61	22.48	177.011	Horizontal	Pass	
		1910	-2.09	3.33	27.59	22.17	164.816	Horizontal	Pass	
15.0MHz Band 16 QAM	1/#Mid	1857.5	-1.73	3.15	27.65	22.77	189.234	Horizontal	Pass	
		1882,5	-1.65	3.31	27.61	22.65	184.077	Horizontal	Pass	
		1907.5	-1.45	3.33	27.57	22.79	190.108	Horizontal	Pass	
20.0MHz Band 16 QAM	1/#Mid	1860	-1.74	3.17	27.66	22.75	188.365	Horizontal	Pass	
		1882,5	-0.82	3.32	27.61	23.47	222.331	Horizontal	Pass	
		1905	-1.65	3.36	27.56	22.55	179.887	Horizontal	Pass	
1.4MHz Band 16 QAM	1/#Mid	1850.7	-1.59	3.12	27.58	22.87	193.642	Vertical	Pass	
		1882,5	-0.98	3.27	27.61	23.36	216.770	Vertical	Pass	
		1914.3	-1.81	3.29	27.63	22.53	179.061	Vertical	Pass	
3.0MHz Band 16 QAM	1/#Mid	1851.5	-1.96	3.13	27.61	22.52	178.649	Vertical	Pass	
		1882,5	-2.88	3.27	27.61	21.46	139.959	Vertical	Pass	
		1913.5	-1.86	3.30	27.62	22.46	176.198	Vertical	Pass	
5.0MHz Band 16 QAM	1/#Mid	1852.5	-1.86	3.13	27.63	22.64	183.654	Vertical	Pass	
		1882,5	-1.85	3.27	27.61	22.49	177.419	Vertical	Pass	
		1912.5	-2.08	3.30	27.60	22.22	166.725	Vertical	Pass	
10.0MHz Band 16 QAM	1/#Mid	1855	-1.39	3.15	27.64	23.10	204.174	Vertical	Pass	
		1882,5	-1.84	3.31	27.61	22.46	176.198	Vertical	Pass	
		1910	-1.20	3.33	27.59	23.06	202.302	Vertical	Pass	
15.0MHz Band 16 QAM	1/#Mid	1857.5	-1.34	3.15	27.65	23.16	207.014	Vertical	Pass	
		1882,5	-1.82	3.31	27.61	22.48	177.011	Vertical	Pass	
		1907.5	-1.03	3.33	27.57	23.21	209.411	Vertical	Pass	

20.0MHz		1860	-0.72	3.17	27.66	23.77	238.232	Vertical	Pass
Band 16	1/#Mid	1882,5	-1.49	3.32	27.61	22.80	190.546	Vertical	Pass
QAM		1905	-0.96	3.36	27.56	23.24	210.863	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.8 LTE BAND 26 A

Radiated Power (ERP) for Band 26(814MHz~824MHz)											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction	Max. EIRP	Max. EIRP			
			(dBm)			(dB)	Average	Average			
						(dBm)	(mW)				
1.4MHz Band QPSK	1/#Mid	814.7	7.42	2.01	19.68	2.15	22.94	196.789	Vertical	Pass	
		819	6.49	2.01	19.77	2.15	22.10	162.181	Vertical	Pass	
		823.3	5.48	2.02	19.82	2.15	21.13	129.718	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	815.5	7.02	2.01	19.70	2.15	22.56	180.302	Vertical	Pass	
		819	6.73	2.01	19.77	2.15	22.34	171.396	Vertical	Pass	
		822.5	5.70	2.02	19.81	2.15	21.34	136.144	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	816.5	6.25	2.01	19.71	2.15	21.80	151.356	Vertical	Pass	
		819	7.09	2.01	19.77	2.15	22.70	186.209	Vertical	Pass	
		821.5	5.99	2.02	19.79	2.15	21.61	144.877	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	819	7.20	2.01	19.73	2.15	22.77	189.234	Vertical	Pass	
1.4MHz Band QPSK	1/#Mid	814.7	7.10	2.01	19.68	2.15	22.62	182.810	Horizontal	Pass	
		819	6.54	2.01	19.77	2.15	22.15	164.059	Horizontal	Pass	
		823.3	6.36	2.02	19.82	2.15	22.01	158.855	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	815.5	6.67	2.01	19.70	2.15	22.21	166.341	Horizontal	Pass	
		819	7.01	2.01	19.77	2.15	22.62	182.810	Horizontal	Pass	
		822.5	6.66	2.02	19.81	2.15	22.30	169.824	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	816.5	6.96	2.01	19.71	2.15	22.51	178.238	Horizontal	Pass	
		819	7.25	2.01	19.77	2.15	22.86	193.197	Horizontal	Pass	
		821.5	7.27	2.02	19.79	2.15	22.89	194.536	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	819	7.64	2.01	19.73	2.15	23.21	209.411	Horizontal	Pass	

Radiated Power (ERP) for Band 26(814MHz~824MHz)											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction	Max. EIRP	Max. EIRP			
			(dBm)			(dB)	Average	Average			
							(dBm)	(mW)			
1.4MHz Band 16 QAM	1/#Mid	814.7	6.34	2.01	19.68	2.15	21.86	153.462	Vertical	Pass	
		819	5.95	2.01	19.77	2.15	21.56	143.219	Vertical	Pass	
		823.3	5.05	2.02	19.82	2.15	20.70	117.490	Vertical	Pass	
3.0MHz Band 16 QAM	1/#Mid	815.5	6.40	2.01	19.70	2.15	21.94	156.315	Vertical	Pass	
		819	6.50	2.01	19.77	2.15	22.11	162.555	Vertical	Pass	
		822.5	5.82	2.02	19.81	2.15	21.46	139.959	Vertical	Pass	
5.0MHz Band 16 QAM	1/#Mid	816.5	6.18	2.01	19.71	2.15	21.73	148.936	Vertical	Pass	
		819	6.31	2.01	19.77	2.15	21.92	155.597	Vertical	Pass	
		821.5	6.51	2.02	19.79	2.15	22.13	163.305	Vertical	Pass	
10.0MHz Band 16 QAM	1/#Mid	819	6.62	2.01	19.73	2.15	22.19	165.577	Vertical	Pass	
1.4MHz Band 16 QAM	1/#Mid	814.7	6.44	2.01	19.68	2.15	21.96	157.036	Horizontal	Pass	
		819	6.74	2.01	19.77	2.15	22.35	171.791	Horizontal	Pass	
		823.3	6.70	2.02	19.82	2.15	22.35	171.791	Horizontal	Pass	
3.0MHz Band 16 QAM	1/#Mid	815.5	6.86	2.01	19.70	2.15	22.40	173.780	Horizontal	Pass	
		819	6.55	2.01	19.77	2.15	22.16	164.437	Horizontal	Pass	
		822.5	6.60	2.02	19.81	2.15	22.24	167.494	Horizontal	Pass	
5.0MHz Band 16 QAM	1/#Mid	816.5	6.57	2.01	19.71	2.15	22.12	162.930	Horizontal	Pass	
		819	6.43	2.01	19.77	2.15	22.04	159.956	Horizontal	Pass	
		821.5	5.45	2.02	19.79	2.15	21.07	127.938	Horizontal	Pass	
10.0MHz Band 16 QAM	1/#Mid	819	6.97	2.01	19.73	2.15	22.54	179.473	Horizontal	Pass	

8.9 LTE BAND 26B

Radiated Power (ERP) for Band 26(824MHz~849MHz)											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction	Max. EIRP	Max. EIRP			
			(dBm)			(dB)	Average	Average			
						(dBm)	(mW)				
1.4MHz Band QPSK	1/#Mid	824.7	6.51	2.01	19.68	2.15	22.03	159.588	Vertical	Pass	
		836.5	5.36	2.01	19.77	2.15	20.97	125.026	Vertical	Pass	
		848.3	4.37	2.02	19.82	2.15	20.02	100.462	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	825.5	6.09	2.01	19.70	2.15	21.63	145.546	Vertical	Pass	
		836.5	5.45	2.01	19.77	2.15	21.06	127.644	Vertical	Pass	
		847.5	4.94	2.02	19.81	2.15	20.58	114.288	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	826.5	5.23	2.01	19.71	2.15	20.78	119.674	Vertical	Pass	
		836.5	6.09	2.01	19.77	2.15	21.70	147.911	Vertical	Pass	
		846.5	4.80	2.02	19.79	2.15	20.42	110.154	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	829	5.84	2.01	19.73	2.15	21.41	138.357	Vertical	Pass	
		836.5	6.12	2.01	19.77	2.15	21.73	148.936	Vertical	Pass	
		844	5.64	2.02	19.78	2.15	21.25	133.352	Vertical	Pass	
15.0MHz Band QPSK	1/#Mid	831.5	6.02	2.01	19.73	2.15	21.59	144.212	Vertical	Pass	
		836.5	6.12	2.01	19.77	2.15	21.73	148.936	Vertical	Pass	
		841.5	5.95	2.02	19.78	2.15	21.56	143.219	Vertical	Pass	
1.4MHz Band QPSK	1/#Mid	824.7	5.97	2.01	19.68	2.15	21.49	140.929	Horizontal	Pass	
		836.5	5.21	2.01	19.77	2.15	20.82	120.781	Horizontal	Pass	
		848.3	5.33	2.02	19.82	2.15	20.98	125.314	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	825.5	5.74	2.01	19.70	2.15	21.28	134.276	Horizontal	Pass	
		836.5	5.67	2.01	19.77	2.15	21.28	134.276	Horizontal	Pass	
		847.5	5.59	2.02	19.81	2.15	21.23	132.739	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	826.5	5.91	2.01	19.71	2.15	21.46	139.959	Horizontal	Pass	
		836.5	6.11	2.01	19.77	2.15	21.72	148.594	Horizontal	Pass	
		846.5	6.32	2.02	19.79	2.15	21.94	156.315	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	829	6.73	2.01	19.73	2.15	22.30	169.824	Horizontal	Pass	
		836.5	5.05	2.01	19.77	2.15	20.66	116.413	Horizontal	Pass	
		844	5.29	2.02	19.78	2.15	20.90	123.027	Horizontal	Pass	
15.0MHz Band	1/#Mid	831.5	6.45	2.01	19.73	2.15	22.02	159.221	Horizontal	Pass	
		836.5	6.83	2.01	19.77	2.15	22.44	175.388	Horizontal	Pass	

QPSK		841.5	6.39	2.02	19.78	2.15	22.00	158.489	Horizontal	Pass
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Radiated Power (ERP) for Band 26(824MHz~849MHz)											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP	Max. EIRP			
			(dBm)				Average (dBm)	Average (mW)			
1.4MHz Band 16 QAM	1/#Mid	824.7	5.25	2.01	19.68	2.15	20.77	119.399	Vertical	Pass	
		836.5	4.82	2.01	19.77	2.15	20.43	110.408	Vertical	Pass	
		848.3	4.30	2.02	19.82	2.15	19.95	98.855	Vertical	Pass	
3.0MHz Band 16 QAM	1/#Mid	825.5	5.37	2.01	19.70	2.15	20.91	123.310	Vertical	Pass	
		836.5	5.46	2.01	19.77	2.15	21.07	127.938	Vertical	Pass	
		847.5	5.04	2.02	19.81	2.15	20.68	116.950	Vertical	Pass	
5.0MHz Band 16 QAM	1/#Mid	826.5	5.23	2.01	19.71	2.15	20.78	119.674	Vertical	Pass	
		836.5	5.25	2.01	19.77	2.15	20.86	121.899	Vertical	Pass	
		846.5	5.37	2.02	19.79	2.15	20.99	125.603	Vertical	Pass	
10.0MHz Band 16 QAM	1/#Mid	829	5.77	2.01	19.73	2.15	21.34	136.144	Vertical	Pass	
		836.5	5.17	2.01	19.77	2.15	20.78	119.674	Vertical	Pass	
		844	5.84	2.02	19.78	2.15	21.45	139.637	Vertical	Pass	
15.0MHz Band 16 QAM	1/#Mid	831.5	5.51	2.01	19.73	2.15	21.08	128.233	Vertical	Pass	
		836.5	5.14	2.01	19.77	2.15	20.75	118.850	Vertical	Pass	
		841.5	5.98	2.02	19.78	2.15	21.59	144.212	Vertical	Pass	
1.4MHz Band 16 QAM	1/#Mid	824.7	5.47	2.01	19.68	2.15	20.99	125.603	Horizontal	Pass	
		836.5	5.46	2.01	19.77	2.15	21.07	127.938	Horizontal	Pass	
		848.3	5.36	2.02	19.82	2.15	21.01	126.183	Horizontal	Pass	
3.0MHz Band 16 QAM	1/#Mid	825.5	5.56	2.01	19.70	2.15	21.10	128.825	Horizontal	Pass	
		836.5	5.49	2.01	19.77	2.15	21.10	128.825	Horizontal	Pass	
		847.5	5.42	2.02	19.81	2.15	21.06	127.644	Horizontal	Pass	
5.0MHz Band 16 QAM	1/#Mid	826.5	5.40	2.01	19.71	2.15	20.95	124.451	Horizontal	Pass	
		836.5	5.30	2.01	19.77	2.15	20.91	123.310	Horizontal	Pass	
		846.5	4.63	2.02	19.79	2.15	20.25	105.925	Horizontal	Pass	
10.0MHz Band 16 QAM	1/#Mid	829	5.05	2.01	19.73	2.15	20.62	115.345	Horizontal	Pass	
		836.5	5.76	2.01	19.77	2.15	21.37	137.088	Horizontal	Pass	
		844	5.56	2.02	19.78	2.15	21.17	130.918	Horizontal	Pass	
15.0MHz Band 16 QAM	1/#Mid	831.5	6.17	2.01	19.73	2.15	21.74	149.279	Horizontal	Pass	
		836.5	6.07	2.01	19.77	2.15	21.68	147.231	Horizontal	Pass	
		841.5	5.57	2.02	19.78	2.15	21.18	131.220	Horizontal	Pass	

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.10 LTE BAND 41

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average (dBm)	Average (mW)		
5.0MHz Band QPSK	1/#Mid	2572.5	-0.81	4.54	27.75	22.40	173.780	Horizontal	Pass
		2595	-0.13	4.69	27.72	22.90	194.984	Horizontal	Pass
		2617.5	-0.43	4.71	27.71	22.57	180.717	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2575	-0.97	4.55	27.76	22.24	167.494	Horizontal	Pass
		2595	-1.28	4.69	27.72	21.75	149.624	Horizontal	Pass
		2615	-0.89	4.72	27.70	22.09	161.808	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2577.5	-0.07	4.55	27.77	23.15	206.538	Horizontal	Pass
		2595	-0.40	4.69	27.72	22.63	183.231	Horizontal	Pass
		2612.5	-0.84	4.72	27.69	22.13	163.305	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2580	-1.10	4.57	27.78	22.11	162.555	Horizontal	Pass
		2595	-1.41	4.73	27.72	21.58	143.880	Horizontal	Pass
		2610	0.31	4.75	27.68	23.24	210.863	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2572.5	-0.82	4.54	27.75	22.39	173.380	Vertical	Pass
		2595	-0.95	4.69	27.72	22.08	161.436	Vertical	Pass
		2617.5	-1.38	4.71	27.71	21.62	145.211	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2575	-0.53	4.55	27.76	22.68	185.353	Vertical	Pass
		2595	-0.46	4.69	27.72	22.57	180.717	Vertical	Pass
		2615	-1.78	4.72	27.70	21.20	131.826	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2577.5	-1.03	4.55	27.77	22.19	165.577	Vertical	Pass
		2595	-1.13	4.69	27.72	21.90	154.882	Vertical	Pass
		2612.5	-0.70	4.72	27.69	22.27	168.655	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2580	-0.88	4.57	27.78	22.33	171.002	Vertical	Pass
		2595	-0.28	4.73	27.72	22.71	186.638	Vertical	Pass
		2610	-0.39	4.75	27.68	22.54	179.473	Vertical	Pass

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average (dBm)	Average (mW)		
5.0MHz Band 16 QAM	1/#Mid	2572.5	-2.21	4.54	27.75	21.00	125.893	Horizontal	Pass
		2595	-1.50	4.69	27.72	21.53	142.233	Horizontal	Pass
		2617.5	-1.33	4.71	27.71	21.67	146.893	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2575	-1.41	4.55	27.76	21.80	151.356	Horizontal	Pass
		2595	-1.46	4.69	27.72	21.57	143.549	Horizontal	Pass
		2615	-1.45	4.72	27.70	21.53	142.233	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2577.5	-1.70	4.55	27.77	21.52	141.906	Horizontal	Pass
		2595	-1.51	4.69	27.72	21.52	141.906	Horizontal	Pass
		2612.5	-1.06	4.72	27.69	21.91	155.239	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2580	-1.11	4.57	27.78	22.10	162.181	Horizontal	Pass
		2595	-1.45	4.73	27.72	21.54	142.561	Horizontal	Pass
		2610	-2.30	4.75	27.68	20.63	115.611	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2572.5	-1.84	4.54	27.75	21.37	137.088	Vertical	Pass
		2595	-1.43	4.69	27.72	21.60	144.544	Vertical	Pass
		2617.5	-1.83	4.71	27.71	21.17	130.918	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2575	-2.21	4.55	27.76	21.00	125.893	Vertical	Pass
		2595	-2.79	4.69	27.72	20.24	105.682	Vertical	Pass
		2615	-1.05	4.72	27.70	21.93	155.955	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2577.5	-1.39	4.55	27.77	21.83	152.405	Vertical	Pass
		2595	-1.01	4.69	27.72	22.02	159.221	Vertical	Pass
		2612.5	-1.20	4.72	27.69	21.77	150.314	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2580	-1.18	4.57	27.78	22.03	159.588	Vertical	Pass
		2595	-1.19	4.73	27.72	21.80	151.356	Vertical	Pass
		2610	-1.41	4.75	27.68	21.52	141.906	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.11 LTE BAND 66

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-3.01	3.12	27.58	21.45	139.637	Horizontal	Pass
		1745	-2.80	3.27	27.61	21.54	142.561	Horizontal	Pass
		1779.3	-3.17	3.29	27.63	21.17	130.918	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.13	3.13	27.61	20.35	108.393	Horizontal	Pass
		1745	-4.39	3.27	27.61	19.95	98.855	Horizontal	Pass
		1778.5	-4.65	3.30	27.62	19.67	92.683	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-3.41	3.13	27.63	21.09	128.529	Horizontal	Pass
		1745	-4.77	3.27	27.61	19.57	90.573	Horizontal	Pass
		1777.5	-2.79	3.30	27.60	21.51	141.579	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.67	3.15	27.64	20.82	120.781	Horizontal	Pass
		1745	-2.86	3.31	27.61	21.44	139.316	Horizontal	Pass
		1775	-2.46	3.33	27.59	21.80	151.356	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-4.02	3.15	27.65	20.48	111.686	Horizontal	Pass
		1745	-3.02	3.31	27.61	21.28	134.276	Horizontal	Pass
		1772.5	-3.02	3.33	27.57	21.22	132.434	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-4.23	3.17	27.66	20.26	106.170	Horizontal	Pass
		1745	-2.99	3.32	27.61	21.30	134.896	Horizontal	Pass
		1770	-3.36	3.36	27.56	20.84	121.339	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-2.60	3.12	27.58	21.86	153.462	Vertical	Pass
		1745	-4.09	3.27	27.61	20.25	105.925	Vertical	Pass
		1779.3	-4.35	3.29	27.63	19.99	99.770	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.75	3.13	27.61	21.73	148.936	Vertical	Pass
		1745	-2.70	3.27	27.61	21.64	145.881	Vertical	Pass
		1778.5	-2.79	3.30	27.62	21.53	142.233	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.11	3.13	27.63	20.39	109.396	Vertical	Pass
		1745	-3.55	3.27	27.61	20.79	119.950	Vertical	Pass
		1777.5	-4.27	3.30	27.60	20.03	100.693	Vertical	Pass
10.0MHz Band	1/#Mid	1715	-4.14	3.15	27.64	20.35	108.393	Vertical	Pass
		1745	-4.38	3.31	27.61	19.92	98.175	Vertical	Pass

QPSK		1775	-2.96	3.33	27.59	21.30	134.896	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-3.76	3.15	27.65	20.74	118.577	Vertical	Pass
Band		1745	-3.54	3.31	27.61	20.76	119.124	Vertical	Pass
QPSK		1772.5	-3.95	3.33	27.57	20.29	106.905	Vertical	Pass
20.0MHz	1/#Mid	1720	-3.17	3.17	27.66	21.32	135.519	Vertical	Pass
Band		1745	-2.37	3.32	27.61	21.92	155.597	Vertical	Pass
QPSK		1770	-2.86	3.36	27.56	21.34	136.144	Vertical	Pass

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP		
			(dBm)			Average (dBm)	Average (mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.93	3.12	27.58	20.53	112.980	Horizontal	Pass
		1745	-4.21	3.27	27.61	20.13	103.039	Horizontal	Pass
		1779.3	-4.18	3.29	27.63	20.16	103.753	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.05	3.13	27.61	20.43	110.408	Horizontal	Pass
		1745	-5.29	3.27	27.61	19.05	80.353	Horizontal	Pass
		1778.5	-3.87	3.30	27.62	20.45	110.917	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.21	3.13	27.63	20.29	106.905	Horizontal	Pass
		1745	-4.19	3.27	27.61	20.15	103.514	Horizontal	Pass
		1777.5	-3.56	3.30	27.60	20.74	118.577	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.26	3.15	27.64	20.23	105.439	Horizontal	Pass
		1745	-3.87	3.31	27.61	20.43	110.408	Horizontal	Pass
		1775	-4.21	3.33	27.59	20.05	101.158	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.33	3.15	27.65	20.17	103.992	Horizontal	Pass
		1745	-4.22	3.31	27.61	20.08	101.859	Horizontal	Pass
		1772.5	-3.85	3.33	27.57	20.39	109.396	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-4.02	3.17	27.66	20.47	111.429	Horizontal	Pass
		1745	-3.45	3.32	27.61	20.84	121.339	Horizontal	Pass
		1770	-4.10	3.36	27.56	20.10	102.329	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.55	3.12	27.58	20.91	123.310	Vertical	Pass
		1745	-3.43	3.27	27.61	20.91	123.310	Vertical	Pass
		1779.3	-4.04	3.29	27.63	20.30	107.152	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.18	3.13	27.61	20.30	107.152	Vertical	Pass
		1745	-5.06	3.27	27.61	19.28	84.723	Vertical	Pass
		1778.5	-4.03	3.30	27.62	20.29	106.905	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.15	3.13	27.63	20.35	108.393	Vertical	Pass
		1745	-4.02	3.27	27.61	20.32	107.647	Vertical	Pass
		1777.5	-4.26	3.30	27.60	20.04	100.925	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.76	3.15	27.64	20.73	118.304	Vertical	Pass
		1745	-4.13	3.31	27.61	20.17	103.992	Vertical	Pass
		1775	-3.59	3.33	27.59	20.67	116.681	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.60	3.15	27.65	20.90	123.027	Vertical	Pass
		1745	-3.98	3.31	27.61	20.32	107.647	Vertical	Pass
		1772.5	-3.42	3.33	27.57	20.82	120.781	Vertical	Pass

20.0MHz		1720	-3.65	3.17	27.66	20.84	121.339	Vertical	Pass
Band 16	1/#Mid	1745	-3.86	3.32	27.61	20.43	110.408	Vertical	Pass
QAM		1770	-3.28	3.36	27.56	20.92	123.595	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53 and §90.691

LIMIT

§22.917 (e) and §24.238 and §90.691 (a): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

§27.53 (g) For operations in the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB.

§27.53 (h) For operations in the 1710–1755 MHz and 2110–2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB.

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

The unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth in the 1 MHz band immediately outside and adjacent to the channel edge of the equipment. Beyond the 1 MHz band immediately outside the channel edge of the equipment, a resolution bandwidth of 1 MHz shall be employed. A narrower resolution bandwidth is allowed to be used provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz or 1% of the occupied bandwidth as applicable.

The power of any unwanted emissions measured from the channel edge of the equipment shall be attenuated below the transmitter power, P (dBW), as follows:

- a. for base station and subscriber equipment, other than mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \text{ Log}_{10}(p)$, dB; and
- b. for mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \text{ Log}_{10}(p)$, dB at the channel edges and $55 + 10 \text{ Log}_{10}(p)$ at 5.5 MHz away and beyond the channel edges where p in (a) and (b) is the transmitter power measured in watts.

MODES TESTED

- LTE Band 2
LTE Band 4
- LTE Band 5
LTE Band 12
LTE Band 13
LTE Band 25,
LTE Band 26,
LTE Band 41,
LTE Band 66

RESULTS

PASS

9.1 LTE BAND 2

QPSK EIRP POWER FOR LTE BAND 2 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-52.34	4.04	33.51	-22.87	-13	-9.87	Horizontal
3701.4	-52.37	4.04	33.51	-22.90	-13	-9.90	Vertical
5552.1	-47.95	5.24	35.84	-17.35	-13	-4.35	Vertical
5552.1	-49.89	5.24	35.84	-19.29	-13	-6.29	Horizontal
174.1	-44.97	1.30	16.40	-29.87	-13	-16.87	Vertical
121.1	-46.27	1.70	17.49	-30.48	-13	-17.48	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-54.67	4.04	33.56	-25.15	-13	-12.15	Horizontal
3760.0	-50.82	4.04	33.56	-21.30	-13	-8.30	Vertical
5640.0	-48.20	5.24	35.91	-17.53	-13	-4.53	Vertical
5640.0	-51.79	5.24	35.91	-21.12	-13	-8.12	Horizontal
239.3	-40.11	1.43	17.64	-23.90	-13	-10.90	Vertical
137.5	-40.35	1.56	17.30	-24.61	-13	-11.61	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-50.01	4.04	34.00	-20.05	-13	-7.05	Horizontal
3818.6	-54.01	4.04	34.00	-24.05	-13	-11.05	Vertical
5727.9	-55.16	5.24	36.04	-24.36	-13	-11.36	Vertical
5727.9	-58.14	5.24	36.04	-27.34	-13	-14.34	Horizontal
114.9	-45.84	1.79	15.50	-32.13	-13	-19.13	Vertical
166.7	-40.68	1.70	15.32	-27.06	-13	-14.06	Horizontal

QPSK EIRP POWER FOR LTE BAND 2 (20.0MHZ BANDWIDTH)

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-50.88	4.07	33.54	-21.41	-13	-8.41	Horizontal
3720.0	-56.20	4.07	33.54	-26.73	-13	-13.73	Vertical
5580.0	-53.20	5.28	35.86	-22.62	-13	-9.62	Vertical
5580.0	-49.55	5.28	35.86	-18.97	-13	-5.97	Horizontal
234.3	-37.99	1.54	16.45	-23.08	-13	-10.08	Vertical
112.7	-43.24	1.56	16.31	-28.49	-13	-15.49	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-47.48	4.04	33.56	-17.96	-13	-4.96	Horizontal
3760.0	-48.10	4.04	33.56	-18.58	-13	-5.58	Vertical
5640.0	-50.69	5.24	35.91	-20.02	-13	-7.02	Vertical
5640.0	-50.50	5.24	35.91	-19.83	-13	-6.83	Horizontal
227.6	-43.63	1.49	15.65	-29.47	-13	-16.47	Vertical
125.0	-45.89	1.61	16.88	-30.62	-13	-17.62	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-57.03	4.04	34.00	-27.07	-13	-14.07	Horizontal
3800.0	-55.35	4.04	34.00	-25.39	-13	-12.39	Vertical
5700.0	-48.26	5.24	36.04	-17.46	-13	-4.46	Vertical
5700.0	-56.82	5.24	36.04	-26.02	-13	-13.02	Horizontal
102.4	-47.26	1.63	17.28	-31.61	-13	-18.61	Vertical
185.8	-41.26	1.32	16.43	-26.15	-13	-13.15	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

. Over Limit= : P_{Mea}(dBm)-Limit(dBm)

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.2 LTE BAND 4

QPSK EIRP POWER FOR LTE BAND 4 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-53.02	4.02	29.80	-27.24	-13	-14.24	Horizontal
3421.4	-48.47	4.02	29.80	-22.69	-13	-9.69	Vertical
5132.1	-53.98	5.24	35.84	-23.38	-13	-10.38	Vertical
5132.1	-54.52	5.24	35.84	-23.92	-13	-10.92	Horizontal
235.5	-39.03	1.35	16.01	-24.37	-13	-11.37	Vertical
83.4	-47.62	1.40	17.99	-31.03	-13	-18.03	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-55.58	4.03	30.00	-29.61	-13	-16.61	Horizontal
3465.0	-46.75	4.03	30.00	-20.78	-13	-7.78	Vertical
5197.5	-47.55	5.25	35.86	-16.94	-13	-3.94	Vertical
5197.5	-51.93	5.25	35.86	-21.32	-13	-8.32	Horizontal
148.9	-45.45	1.37	15.87	-30.95	-13	-17.95	Vertical
104.3	-44.19	1.78	17.02	-28.95	-13	-15.95	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-54.64	4.05	30.01	-28.68	-13	-15.68	Horizontal
3508.6	-54.31	4.05	30.01	-28.35	-13	-15.35	Vertical
5262.9	-56.80	5.26	35.86	-26.20	-13	-13.20	Vertical
5262.9	-51.97	5.26	35.86	-21.37	-13	-8.37	Horizontal
149.2	-38.34	1.32	15.83	-23.83	-13	-10.83	Vertical
140.8	-46.47	1.63	16.82	-31.28	-13	-18.28	Horizontal

QPSK EIRP POWER FOR LTE BAND 4 (20.0MHZ BANDWIDTH)

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-51.25	4.02	29.80	-25.47	-13	-12.47	Horizontal
3440.0	-50.34	4.02	29.80	-24.56	-13	-11.56	Vertical
5160.0	-53.76	5.24	35.84	-23.16	-13	-10.16	Vertical
5160.0	-49.52	5.24	35.84	-18.92	-13	-5.92	Horizontal
257.4	-45.42	1.72	17.15	-29.99	-13	-16.99	Vertical
278.2	-38.56	1.71	16.55	-23.72	-13	-10.72	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-54.55	4.03	30.00	-28.58	-13	-15.58	Horizontal
3465.0	-46.75	4.03	30.00	-20.78	-13	-7.78	Vertical
5197.5	-50.49	5.25	35.86	-19.88	-13	-6.88	Vertical
5197.5	-52.15	5.25	35.86	-21.54	-13	-8.54	Horizontal
250.4	-40.70	1.36	17.85	-24.21	-13	-11.21	Vertical
184.3	-40.39	1.52	15.20	-26.71	-13	-13.71	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-50.65	2.91	27.68	-25.88	-13	-12.88	Horizontal
3490.0	-48.57	2.91	27.68	-23.80	-13	-10.80	Vertical
5235.0	-52.24	5.26	35.86	-21.64	-13	-8.64	Vertical
5235.0	-55.42	5.26	35.86	-24.82	-13	-11.82	Horizontal
170.3	-46.56	1.60	16.08	-32.08	-13	-19.08	Vertical
276.7	-40.30	1.33	15.35	-26.28	-13	-13.28	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ ARpl (dBm)

Over Limit= : P_{Mea}(dBm)-Limit(dBm)

Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.3 LTE BAND 5

QPSK EIRP POWER FOR LTE BAND 5 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-55.67	2.78	27.50	-30.95	-13	-17.95	Horizontal
1649.4	-53.03	2.78	27.50	-28.31	-13	-15.31	Vertical
2474.1	-45.31	2.90	27.80	-20.41	-13	-7.41	Vertical
2474.1	-45.18	2.90	27.80	-20.28	-13	-7.28	Horizontal
220.7	-46.40	1.48	15.59	-32.29	-13	-19.29	Vertical
138.5	-42.52	1.80	17.66	-26.66	-13	-13.66	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-42.06	2.80	27.48	-17.38	-13	-4.38	Horizontal
1673.0	-46.08	2.80	27.48	-21.40	-13	-8.40	Vertical
2509.5	-51.43	2.91	27.70	-26.64	-13	-13.64	Vertical
2509.5	-50.05	2.91	27.70	-25.26	-13	-12.26	Horizontal
125.1	-44.69	1.41	17.18	-28.92	-13	-15.92	Vertical
154.9	-40.95	1.50	15.05	-27.40	-13	-14.40	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-45.07	2.82	27.43	-20.46	-13	-7.46	Horizontal
1696.6	-45.35	2.82	27.43	-20.74	-13	-7.74	Vertical
2544.9	-49.14	2.92	27.74	-24.32	-13	-11.32	Vertical
2544.9	-43.13	2.92	27.74	-18.31	-13	-5.31	Horizontal
176.4	-39.96	1.76	16.98	-24.74	-13	-11.74	Vertical
278.1	-39.01	1.73	16.91	-23.83	-13	-10.83	Horizontal

QPSK EIRP POWER FOR LTE BAND 5 (10MHZ BANDWIDTH)

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658.0	-41.47	2.78	27.50	-16.75	-13	-3.75	Horizontal
1658.0	-44.26	2.78	27.50	-19.54	-13	-6.54	Vertical
2487.0	-48.41	2.90	27.80	-23.51	-13	-10.51	Vertical
2487.0	-43.75	2.90	27.80	-18.85	-13	-5.85	Horizontal
260.5	-45.33	1.78	15.02	-32.09	-13	-19.09	Vertical
99.1	-46.74	1.71	16.39	-32.06	-13	-19.06	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-48.96	2.80	27.48	-24.28	-13	-11.28	Horizontal
1673.0	-51.98	2.80	27.48	-27.30	-13	-14.30	Vertical
2509.5	-48.85	2.91	27.70	-24.06	-13	-11.06	Vertical
2509.5	-44.00	2.91	27.70	-19.21	-13	-6.21	Horizontal
249.3	-47.80	1.77	17.58	-31.99	-13	-18.99	Vertical
94.8	-44.59	1.56	16.31	-29.84	-13	-16.84	Horizontal
Test Results for High Channel 844MHz							
1688.0	-43.01	2.82	27.43	-18.40	-13	-5.40	Horizontal
1688.0	-41.02	2.82	27.43	-16.41	-13	-3.41	Vertical
2532.0	-44.13	2.92	27.74	-19.31	-13	-6.31	Vertical
2532.0	-45.73	2.92	27.74	-20.91	-13	-7.91	Horizontal
82.8	-39.48	1.46	17.66	-23.28	-13	-10.28	Vertical
170.1	-42.09	1.47	15.42	-28.14	-13	-15.14	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

. Over Limit= : P_{Mea}(dBm)-Limit(dBm)

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.4 LTE BAND 12

QPSK EIRP POWER FOR LTE BAND 12 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 699.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1399.4	-45.46	2.60	27.20	-20.86	-13	-7.86	Horizontal
1399.4	-51.66	2.60	27.20	-27.06	-13	-14.06	Vertical
2099.1	-48.75	2.85	27.54	-24.06	-13	-11.06	Vertical
2099.1	-46.23	2.85	27.54	-21.54	-13	-8.54	Horizontal
243.9	-47.73	1.71	17.84	-31.60	-13	-18.60	Vertical
187.1	-43.37	1.46	15.07	-29.76	-13	-16.76	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-51.89	2.61	27.28	-27.22	-13	-14.22	Horizontal
1415.0	-45.26	2.61	27.28	-20.59	-13	-7.59	Vertical
2122.5	-47.86	2.87	27.59	-23.14	-13	-10.14	Vertical
2122.5	-47.28	2.87	27.59	-22.56	-13	-9.56	Horizontal
252.5	-44.78	1.56	15.61	-30.73	-13	-17.73	Vertical
96.4	-42.87	1.71	17.71	-26.87	-13	-13.87	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-47.70	2.63	27.28	-23.05	-13	-10.05	Horizontal
1430.6	-49.58	2.63	27.28	-24.93	-13	-11.93	Vertical
2145.9	-47.11	2.88	27.60	-22.39	-13	-9.39	Vertical
2145.9	-45.19	2.88	27.60	-20.47	-13	-7.47	Horizontal
204.8	-37.37	1.75	16.05	-23.07	-13	-10.07	Vertical
163.0	-38.49	1.46	15.52	-24.43	-13	-11.43	Horizontal

QPSK EIRP POWER FOR LTE BAND 12 (10MHZ BANDWIDTH)

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408.0	-44.48	2.61	27.26	-19.83	-13	-6.83	Horizontal
1408.0	-44.20	2.61	27.26	-19.55	-13	-6.55	Vertical
2112.0	-53.55	2.87	27.58	-28.84	-13	-15.84	Vertical
2112.0	-47.93	2.87	27.58	-23.22	-13	-10.22	Horizontal
169.0	-45.45	1.38	15.09	-31.74	-13	-18.74	Vertical
227.1	-47.13	1.67	17.55	-31.25	-13	-18.25	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-50.45	2.61	27.28	-25.78	-13	-12.78	Horizontal
1415.0	-48.14	2.61	27.28	-23.47	-13	-10.47	Vertical
2122.5	-43.54	2.87	27.59	-18.82	-13	-5.82	Vertical
2122.5	-47.75	2.87	27.59	-23.03	-13	-10.03	Horizontal
223.4	-44.78	1.39	16.27	-29.90	-13	-16.90	Vertical
153.3	-47.52	1.37	15.99	-32.90	-13	-19.90	Horizontal
Test Results for High Channel 711MHz							
1422.0	-48.87	2.62	27.28	-24.21	-13	-11.21	Horizontal
1422.0	-50.26	2.62	27.28	-25.60	-13	-12.60	Vertical
2133.0	-49.24	2.87	27.60	-24.51	-13	-11.51	Vertical
2133.0	-48.07	2.87	27.60	-23.34	-13	-10.34	Horizontal
197.8	-47.29	1.57	16.89	-31.97	-13	-18.97	Vertical
144.7	-45.46	1.55	15.82	-31.19	-13	-18.19	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

. Over Limit= : P_{Mea}(dBm)-Limit(dBm)

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.5 LTE BAND 13

QPSK EIRP POWER FOR LTE BAND 13 (5MHZ BANDWIDTH)

Test Results for Low Channel 779.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1559.0	-75.35	2.61	27.28	-50.68	-40	-10.68	Horizontal
1559.0	-72.05	2.61	27.28	-47.38	-40	-7.38	Vertical
2338.5	-49.09	2.87	27.59	-24.37	-13	-11.37	Vertical
2338.5	-41.74	2.87	27.59	-17.02	-13	-4.02	Horizontal
120.1	-37.35	1.54	15.61	-23.28	-13	-10.28	Vertical
197.8	-38.65	1.51	15.21	-24.95	-13	-11.95	Horizontal
Test Results For Mid Channel 782MHz							
1564.0	-73.58	2.62	27.30	-48.90	-40	-8.90	Horizontal
1564.0	-75.16	2.62	27.30	-50.48	-40	-10.48	Vertical
2346.0	-45.21	2.87	27.62	-20.46	-13	-7.46	Vertical
2346.0	-44.54	2.87	27.62	-19.79	-13	-6.79	Horizontal
131.2	-42.03	1.65	16.17	-27.51	-13	-14.51	Vertical
267.5	-43.27	1.48	16.88	-27.87	-13	-14.87	Horizontal
Test Results for High Channel 784.5MHz							
1569.0	-75.79	2.66	27.28	-51.17	-40	-11.17	Horizontal
1569.0	-75.31	2.66	27.28	-50.69	-40	-10.69	Vertical
2353.5	-42.51	2.88	27.60	-17.79	-13	-4.79	Vertical
2353.5	-52.34	2.88	27.60	-27.62	-13	-14.62	Horizontal
80.8	-40.16	1.54	16.40	-25.30	-13	-12.30	Vertical
155.6	-38.13	1.43	15.77	-23.79	-13	-10.79	Horizontal

QPSK EIRP POWER FOR LTE BAND 13 (10MHZ BANDWIDTH)

Test Results for Channel 782MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1564.0	-73.00	2.62	27.30	-48.32	-40	-8.32	Horizontal
1564.0	-79.61	2.62	27.30	-54.93	-40	-14.93	Vertical
2346.0	-52.66	2.87	27.62	-27.91	-13	-14.91	Vertical
2346.0	-48.89	2.87	27.62	-24.14	-13	-11.14	Horizontal
129.1	-46.59	1.43	17.03	-30.99	-13	-17.99	Vertical
86.9	-39.87	1.62	16.63	-24.86	-13	-11.86	Horizontal

Note: $P_{Mea}(dBm) = Power(dBm) + ARpl (dBm)$

. Over Limit = : $P_{Mea}(dBm) - Limit(dBm)$

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.6 LTE BAND 25

QPSK EIRP POWER FOR LTE BAND 25 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-46.39	4.02	29.80	-20.61	-13	-7.61	Horizontal
3701.4	-54.33	4.02	29.80	-28.55	-13	-15.55	Vertical
5552.1	-55.30	5.24	35.84	-24.70	-13	-11.70	Vertical
5552.1	-53.54	5.24	35.84	-22.94	-13	-9.94	Horizontal
93.9	-36.62	1.59	15.11	-23.10	-13	-10.10	Vertical
119.7	-36.92	1.80	15.61	-23.11	-13	-10.11	Horizontal
Test Results for Mid Channel 1732.5MHz							
3765.0	-51.50	4.03	30.00	-25.53	-13	-12.53	Horizontal
3765.0	-49.87	4.03	30.00	-23.90	-13	-10.90	Vertical
5647.5	-52.10	5.25	35.86	-21.49	-13	-8.49	Vertical
5647.5	-51.67	5.25	35.86	-21.06	-13	-8.06	Horizontal
166.1	-42.43	1.37	15.62	-28.18	-13	-15.18	Vertical
274.4	-44.75	1.55	17.51	-28.79	-13	-15.79	Horizontal
Test Results for High Channel 1754.3MHz							
3828.6	-54.16	4.05	30.01	-28.20	-13	-15.20	Horizontal
3828.6	-53.28	4.05	30.01	-27.32	-13	-14.32	Vertical
5742.9	-50.15	5.26	35.86	-19.55	-13	-6.55	Vertical
5742.9	-50.11	5.26	35.86	-19.51	-13	-6.51	Horizontal
108.6	-41.53	1.66	17.19	-26.00	-13	-13.00	Vertical
138.7	-44.84	1.35	17.94	-28.25	-13	-15.25	Horizontal

QPSK EIRP POWER FOR LTE BAND 25 (20MHZ BANDWIDTH)

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-50.14	4.02	29.80	-24.36	-13	-11.36	Horizontal
3720.0	-47.31	4.02	29.80	-21.53	-13	-8.53	Vertical
5580.0	-47.26	5.24	35.84	-16.66	-13	-3.66	Vertical
5580.0	-52.63	5.24	35.84	-22.03	-13	-9.03	Horizontal
146.2	-42.79	1.70	15.24	-29.25	-13	-16.25	Vertical
215.4	-45.44	1.42	16.58	-30.28	-13	-17.28	Horizontal
Test Results for Mid Channel 1732.5MHz							
3765.0	-52.39	4.03	30.00	-26.42	-13	-13.42	Horizontal
3765.0	-52.63	4.03	30.00	-26.66	-13	-13.66	Vertical
5647.5	-54.59	5.25	35.86	-23.98	-13	-10.98	Vertical
5647.5	-55.38	5.25	35.86	-24.77	-13	-11.77	Horizontal
132.2	-47.33	1.64	16.16	-32.81	-13	-19.81	Vertical
133.3	-43.01	1.62	17.37	-27.26	-13	-14.26	Horizontal
Test Results for High Channel 1745MHz							
3810.0	-50.98	2.91	27.68	-26.21	-13	-13.21	Horizontal
3810.0	-50.63	2.91	27.68	-25.86	-13	-12.86	Vertical
5715.0	-55.51	5.26	35.86	-24.91	-13	-11.91	Vertical
5715.0	-49.75	5.26	35.86	-19.15	-13	-6.15	Horizontal
212.6	-38.86	1.49	15.29	-25.06	-13	-12.06	Vertical
275.8	-42.42	1.79	16.42	-27.79	-13	-14.79	Horizontal

9.7 LTE BAND 26

QPSK EIRP POWER FOR LTE BAND 26(814MHz~824MHz) (1.4MHZ BANDWIDTH)

Test Results for Low Channel 814.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1629.4	-48.39	2.78	27.50	-23.67	-13	-10.67	Horizontal
1629.4	-50.55	2.78	27.50	-25.83	-13	-12.83	Vertical
2444.1	-44.35	2.90	27.80	-19.45	-13	-6.45	Vertical
2444.1	-51.24	2.90	27.80	-26.34	-13	-13.34	Horizontal
229.6	-43.17	1.54	16.98	-27.73	-13	-14.73	Vertical
83.3	-41.99	1.47	15.82	-27.64	-13	-14.64	Horizontal
Test Results For Mid Channel 819MHz							
1638.0	-43.02	2.80	27.48	-18.34	-13	-5.34	Horizontal
1638.0	-48.41	2.80	27.48	-23.73	-13	-10.73	Vertical
2457.0	-48.63	2.91	27.70	-23.84	-13	-10.84	Vertical
2457.0	-42.56	2.91	27.70	-17.77	-13	-4.77	Horizontal
168.2	-40.30	1.74	16.19	-25.85	-13	-12.85	Vertical
92.9	-43.72	1.46	15.43	-29.75	-13	-16.75	Horizontal
Test Results for High Channel 823.3MHz							
1646.6	-48.71	2.82	27.43	-24.10	-13	-11.10	Horizontal
1646.6	-47.68	2.82	27.43	-23.07	-13	-10.07	Vertical
2469.9	-48.43	2.92	27.74	-23.61	-13	-10.61	Vertical
2469.9	-44.17	2.92	27.74	-19.35	-13	-6.35	Horizontal
213.1	-47.31	1.67	17.05	-31.93	-13	-18.93	Vertical
121.7	-41.02	1.42	16.12	-26.32	-13	-13.32	Horizontal

QPSK EIRP POWER FOR LTE BAND 26(814MHz~824MHz) (1.4MHZ BANDWIDTH)

Test Results for Channel 819MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1638.0	-44.42	2.78	27.50	-19.70	-13	-6.70	Horizontal
1638.0	-44.23	2.78	27.50	-19.51	-13	-6.51	Vertical
2457.0	-46.54	2.90	27.80	-21.64	-13	-8.64	Vertical
2457.0	-44.08	2.90	27.80	-19.18	-13	-6.18	Horizontal
253.7	-39.89	1.43	17.34	-23.98	-13	-10.98	Vertical
256.8	-42.67	1.56	15.71	-28.52	-13	-15.52	Horizontal

QPSK EIRP POWER FOR LTE BAND 26(824MHz~849MHz) (1.4MHZ BANDWIDTH)

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-51.04	2.78	27.50	-26.32	-13	-13.32	Horizontal
1649.4	-49.50	2.78	27.50	-24.78	-13	-11.78	Vertical
2474.1	-49.31	2.90	27.80	-24.41	-13	-11.41	Vertical
2474.1	-53.68	2.90	27.80	-28.78	-13	-15.78	Horizontal
237.0	-45.09	1.33	17.34	-29.08	-13	-16.08	Vertical
180.5	-46.07	1.47	16.80	-30.74	-13	-17.74	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-44.01	2.80	27.48	-19.33	-13	-6.33	Horizontal
1673.0	-47.85	2.80	27.48	-23.17	-13	-10.17	Vertical
2509.5	-50.46	2.91	27.70	-25.67	-13	-12.67	Vertical
2509.5	-47.20	2.91	27.70	-22.41	-13	-9.41	Horizontal
140.8	-38.59	1.75	15.46	-24.88	-13	-11.88	Vertical
90.6	-40.20	1.52	16.14	-25.58	-13	-12.58	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-45.12	2.82	27.43	-20.51	-13	-7.51	Horizontal
1696.6	-46.74	2.82	27.43	-22.13	-13	-9.13	Vertical
2544.9	-48.06	2.92	27.74	-23.24	-13	-10.24	Vertical
2544.9	-45.71	2.92	27.74	-20.89	-13	-7.89	Horizontal
171.4	-41.81	1.67	16.09	-27.39	-13	-14.39	Vertical
247.2	-38.91	1.80	17.55	-23.16	-13	-10.16	Horizontal

QPSK EIRP POWER FOR LTE BAND 26(824MHz-849MHz) (15MHZ BANDWIDTH)

Test Results for Low Channel 831.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1663.0	-44.31	2.78	27.50	-19.59	-13	-6.59	Horizontal
1663.0	-44.76	2.78	27.50	-20.04	-13	-7.04	Vertical
2494.5	-46.89	2.90	27.80	-21.99	-13	-8.99	Vertical
2494.5	-45.06	2.90	27.80	-20.16	-13	-7.16	Horizontal
255.4	-43.09	1.52	15.72	-28.89	-13	-15.89	Vertical
163.1	-41.19	1.40	17.03	-25.56	-13	-12.56	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-48.98	2.80	27.48	-24.30	-13	-11.30	Horizontal
1673.0	-50.31	2.80	27.48	-25.63	-13	-12.63	Vertical
2509.5	-49.41	2.91	27.70	-24.62	-13	-11.62	Vertical
2509.5	-50.12	2.91	27.70	-25.33	-13	-12.33	Horizontal
227.1	-44.92	1.74	16.38	-30.28	-13	-17.28	Vertical
101.3	-41.45	1.79	15.20	-28.04	-13	-15.04	Horizontal
Test Results for High Channel 841.5MHz							
1683.0	-42.93	2.82	27.43	-18.32	-13	-5.32	Horizontal
1683.0	-47.27	2.82	27.43	-22.66	-13	-9.66	Vertical
2524.5	-48.97	2.92	27.74	-24.15	-13	-11.15	Vertical
2524.5	-46.64	2.92	27.74	-21.82	-13	-8.82	Horizontal
261.1	-40.95	1.78	17.44	-25.29	-13	-12.29	Vertical
120.1	-42.45	1.70	15.93	-28.22	-13	-15.22	Horizontal

9.8 LTE BAND 41

QPSK EIRP POWER FOR LTE BAND 41 (5MHZ BANDWIDTH)

Test Results for Low Channel 2572.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5145.0	-68.54	5.23	35.81	-37.96	-25	-12.96	Horizontal
5145.0	-68.56	5.23	35.81	-37.98	-25	-12.98	Vertical
7717.5	-63.82	5.67	36.85	-32.64	-25	-7.64	Vertical
7717.5	-66.23	5.67	36.85	-35.05	-25	-10.05	Horizontal
435.3	-56.16	1.38	15.98	-41.56	-25	-16.56	Vertical
465.8	-50.23	1.62	15.66	-36.19	-25	-11.19	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-62.20	5.23	35.82	-31.61	-25	-6.61	Horizontal
5190.0	-63.57	5.23	35.82	-32.98	-25	-7.98	Vertical
7785.0	-68.47	5.67	36.85	-37.29	-25	-12.29	Vertical
7785.0	-67.26	5.67	36.85	-36.08	-25	-11.08	Horizontal
510.4	-53.40	1.62	16.17	-38.85	-25	-13.85	Vertical
562.9	-53.27	1.74	17.63	-37.38	-25	-12.38	Horizontal
Test Results for High Channel 2617.5MHz							
5235.0	-63.06	5.24	35.83	-32.47	-25	-7.47	Horizontal
5235.0	-66.96	5.24	35.83	-36.37	-25	-11.37	Vertical
7852.5	-67.64	5.68	36.87	-36.45	-25	-11.45	Vertical
7852.5	-67.49	5.68	36.87	-36.30	-25	-11.30	Horizontal
197.6	-50.26	1.55	15.84	-35.97	-25	-10.97	Vertical
353.1	-52.39	1.51	17.06	-36.84	-25	-11.84	Horizontal

QPSK EIRP POWER FOR LTE BAND 41 (5MHZ BANDWIDTH)

Test Results for Low Channel 2580MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5160.0	-63.99	5.23	35.82	-33.40	-25	-8.40	Horizontal
5160.0	-64.78	5.23	35.82	-34.19	-25	-9.19	Vertical
7740.0	-72.02	5.67	36.86	-40.83	-25	-15.83	Vertical
7740.0	-68.68	5.67	36.86	-37.49	-25	-12.49	Horizontal
128.9	-53.67	1.43	15.51	-39.59	-25	-14.59	Vertical
344.8	-57.84	1.40	16.97	-42.27	-25	-17.27	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-66.78	5.23	35.82	-36.19	-25	-11.19	Horizontal
5190.0	-64.58	5.23	35.82	-33.99	-25	-8.99	Vertical
7785.0	-63.99	5.67	36.85	-32.81	-25	-7.81	Vertical
7785.0	-65.15	5.67	36.85	-33.97	-25	-8.97	Horizontal
100.8	-51.00	1.77	16.72	-36.05	-25	-11.05	Vertical
263.5	-53.07	1.31	16.99	-37.39	-25	-12.39	Horizontal
Test Results for High Channel 2610MHz							
5220.0	-67.52	5.24	35.83	-36.93	-25	-11.93	Horizontal
5220.0	-65.54	5.24	35.83	-34.95	-25	-9.95	Vertical
7830.0	-70.79	5.70	36.88	-39.61	-25	-14.61	Vertical
7830.0	-64.61	5.70	36.88	-33.43	-25	-8.43	Horizontal
349.9	-55.28	1.70	15.73	-41.25	-25	-16.25	Vertical
110.3	-55.87	1.75	17.33	-40.29	-25	-15.29	Horizontal

9.9 LTE BAND 66

QPSK EIRP POWER FOR LTE BAND 66 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-46.34	4.02	29.80	-20.56	-13	-7.56	Horizontal
3421.4	-54.01	4.02	29.80	-28.23	-13	-15.23	Vertical
5132.1	-50.08	5.24	35.84	-19.48	-13	-6.48	Vertical
5132.1	-47.84	5.24	35.84	-17.24	-13	-4.24	Horizontal
112.6	-42.00	1.52	15.57	-27.95	-13	-14.95	Vertical
220.5	-45.53	1.33	17.14	-29.72	-13	-16.72	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-50.04	4.03	30.00	-24.07	-13	-11.07	Horizontal
3490.0	-50.85	4.03	30.00	-24.88	-13	-11.88	Vertical
5235.0	-48.97	5.25	35.86	-18.36	-13	-5.36	Vertical
5235.0	-50.79	5.25	35.86	-20.18	-13	-7.18	Horizontal
157.3	-48.03	1.53	17.13	-32.43	-13	-19.43	Vertical
213.1	-37.93	1.41	15.95	-23.39	-13	-10.39	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-55.69	4.05	30.01	-29.73	-13	-16.73	Horizontal
3558.6	-53.97	4.05	30.01	-28.01	-13	-15.01	Vertical
5337.9	-53.08	5.26	35.86	-22.48	-13	-9.48	Vertical
5337.9	-57.85	5.26	35.86	-27.25	-13	-14.25	Horizontal
170.6	-46.58	1.44	15.51	-32.51	-13	-19.51	Vertical
169.0	-38.43	1.78	15.76	-24.45	-13	-11.45	Horizontal

QPSK EIRP POWER FOR LTE BAND 66 (20MHZ BANDWIDTH)

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-46.02	4.02	29.80	-20.24	-13	-7.24	Horizontal
3440.0	-52.92	4.02	29.80	-27.14	-13	-14.14	Vertical
5160.0	-47.85	5.24	35.84	-17.25	-13	-4.25	Vertical
5160.0	-51.84	5.24	35.84	-21.24	-13	-8.24	Horizontal
268.8	-41.06	1.62	17.02	-25.66	-13	-12.66	Vertical
161.4	-40.71	1.32	17.31	-24.72	-13	-11.72	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-57.82	4.03	30.00	-31.85	-13	-18.85	Horizontal
3490.0	-48.14	4.03	30.00	-22.17	-13	-9.17	Vertical
5235.0	-53.03	5.25	35.86	-22.42	-13	-9.42	Vertical
5235.0	-51.33	5.25	35.86	-20.72	-13	-7.72	Horizontal
159.9	-43.43	1.45	15.17	-29.71	-13	-16.71	Vertical
172.1	-45.24	1.48	17.82	-28.90	-13	-15.90	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-53.64	2.91	27.68	-28.87	-13	-15.87	Horizontal
3540.0	-48.78	2.91	27.68	-24.01	-13	-11.01	Vertical
5310.0	-54.74	5.26	35.86	-24.14	-13	-11.14	Vertical
5310.0	-51.11	5.26	35.86	-20.51	-13	-7.51	Horizontal
197.3	-47.19	1.76	16.38	-32.57	-13	-19.57	Vertical
158.5	-48.06	1.43	17.13	-32.36	-13	-19.36	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

Over Limit= : P_{Mea}(dBm)-Limit(dBm)

We test both H direction and V direction, recorded worst case direction.

Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

10. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54, §90.213

LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

§24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = -30° to $+50^{\circ}\text{C}$
- Voltage = low voltage, DC 3.4V, Normal, DC 3.85V and High voltage, DC 4.2V.

Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to -30°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until $+50^{\circ}\text{C}$ is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

MODES TESTED

- LTE Band 2
LTE Band 4
- LTE Band 5
LTE Band 12
LTE Band 13
LTE Band 25,
LTE Band 26,
LTE Band 41,
LTE Band 66

RESULTS

See the following pages.

10.1 LTE BAND 2

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 QPSK, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
21.42	1880	29.4	0.015649	2.5
25.55	1880	-21.5	-0.011410	2.5
28.98	1880	-23.5	-0.012521	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 QPSK, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1880	-34.2	-0.018197	2.5
Extreme (50C)	1880	18.7	0.009963	2.5
Extreme (40C)	1880	-15.4	-0.008170	2.5
Extreme (30C)	1880	0.5	0.000282	2.5
Extreme (10C)	1880	27.1	0.014399	2.5
Extreme (0C)	1880	32.9	0.017511	2.5
Extreme (-10C)	1880	-32.2	-0.017128	2.5
Extreme (-20C)	1880	28.0	0.014867	2.5
Extreme (-30C)	1880	-14.6	-0.007745	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 16QAM, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
21.42	1880	12.8	0.006793	2.5
25.55	1880	17.4	0.009277	2.5
28.98	1880	-9.9	-0.005245	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 16QAM, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1880	10.8	0.005766	2.5
Extreme (50C)	1880	-24.5	-0.013021	2.5
Extreme (40C)	1880	23.7	0.012606	2.5
Extreme (30C)	1880	18.2	0.009665	2.5
Extreme (10C)	1880	15.5	0.008266	2.5
Extreme (0C)	1880	-10.3	-0.005463	2.5
Extreme (-10C)	1880	-11.4	-0.006080	2.5
Extreme (-20C)	1880	25.9	0.013787	2.5
Extreme (-30C)	1880	4.4	0.002362	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.2 LTE BAND 4

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 QPSK, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
21.42	1732.5	-2.1	-0.001235	2.5
25.55	1732.5	-18.8	-0.010869	2.5
28.98	1732.5	-3.4	-0.001957	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 QPSK, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1732.5	-16.8	-0.009668	2.5
Extreme (50C)	1732.5	-2.8	-0.001616	2.5
Extreme (40C)	1732.5	-14.3	-0.008248	2.5
Extreme (30C)	1732.5	11.2	0.006436	2.5
Extreme (10C)	1732.5	-5.2	-0.003013	2.5
Extreme (0C)	1732.5	18.3	0.010586	2.5
Extreme (-10C)	1732.5	16.9	0.009778	2.5
Extreme (-20C)	1732.5	-1.1	-0.000635	2.5
Extreme (-30C)	1732.5	1.7	0.000981	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 16QAM, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
21.42	1732.5	6.2	0.003602	2.5
25.55	1732.5	-11.0	-0.006343	2.5
28.98	1732.5	-22.1	-0.012756	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 16QAM, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1732.5	17.0	0.009801	2.5
Extreme (50C)	1732.5	18.5	0.010701	2.5
Extreme (40C)	1732.5	26.9	0.015550	2.5
Extreme (30C)	1732.5	-5.9	-0.003377	2.5
Extreme (10C)	1732.5	21.6	0.012462	2.5
Extreme (0C)	1732.5	-15.3	-0.008837	2.5
Extreme (-10C)	1732.5	-16.9	-0.009749	2.5
Extreme (-20C)	1732.5	-2.1	-0.001183	2.5
Extreme (-30C)	1732.5	-14.0	-0.008092	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.3 LTE BAND 5

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 QPSK, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
21.42	836.5	15.5	0.018553	2.5
25.55	836.5	-11.8	-0.014142	2.5
28.98	836.5	-16.5	-0.019773	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 QPSK, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	836.5	-9.3	-0.011142	2.5
Extreme (50C)	836.5	6.8	0.008165	2.5
Extreme (40C)	836.5	-1.3	-0.001506	2.5
Extreme (30C)	836.5	26.0	0.031034	2.5
Extreme (10C)	836.5	-0.5	-0.000562	2.5
Extreme (0C)	836.5	14.2	0.016952	2.5
Extreme (-10C)	836.5	28.7	0.034334	2.5
Extreme (-20C)	836.5	-19.2	-0.022917	2.5
Extreme (-30C)	836.5	22.0	0.026300	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 16QAM, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
21.42	836.5	-11.2	-0.013341	2.5
25.55	836.5	-1.9	-0.002247	2.5
28.98	836.5	8.9	0.010640	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 16QAM, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	836.5	15.4	0.018446	2.5
Extreme (50C)	836.5	20.8	0.024889	2.5
Extreme (40C)	836.5	-15.4	-0.018446	2.5
Extreme (30C)	836.5	-15.7	-0.018757	2.5
Extreme (10C)	836.5	15.8	0.018852	2.5
Extreme (0C)	836.5	-11.9	-0.014214	2.5
Extreme (-10C)	836.5	-8.7	-0.010353	2.5
Extreme (-20C)	836.5	-5.5	-0.006587	2.5
Extreme (-30C)	836.5	8.9	0.010580	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.4 LTE BAND 12

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 12 QPSK, (CH 23095 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
21.42	707.5	25.1	0.035406	2.5
25.55	707.5	-18.1	-0.025640	2.5
28.98	707.5	13.6	0.019237	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 12 QPSK, (CH 23095 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	707.5	15.1	0.021314	2.5
Extreme (50C)	707.5	-24.8	-0.035081	2.5
Extreme (40C)	707.5	-23.4	-0.033004	2.5
Extreme (30C)	707.5	-1.5	-0.002049	2.5
Extreme (10C)	707.5	-10.0	-0.014092	2.5
Extreme (0C)	707.5	-22.4	-0.031689	2.5
Extreme (-10C)	707.5	27.5	0.038841	2.5
Extreme (-20C)	707.5	15.7	0.022247	2.5
Extreme (-30C)	707.5	13.9	0.019576	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 12 16QAM, (CH 23095 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
21.42	707.5	-12.4	-0.017512	2.5
25.55	707.5	15.4	0.021795	2.5
28.98	707.5	10.9	0.015406	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 12 QPSK, (CH 23095 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	707.5	16.9	0.023859	2.5
Extreme (50C)	707.5	21.1	0.029866	2.5
Extreme (40C)	707.5	-1.9	-0.002686	2.5
Extreme (30C)	707.5	3.9	0.005442	2.5
Extreme (10C)	707.5	11.5	0.016198	2.5
Extreme (0C)	707.5	-11.2	-0.015802	2.5
Extreme (-10C)	707.5	-1.1	-0.001498	2.5
Extreme (-20C)	707.5	5.6	0.007972	2.5
Extreme (-30C)	707.5	-20.5	-0.028905	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.5 LTE BAND 13

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
21.42	782	2.8	0.003581	2.5
25.55	782	17.7	0.022609	2.5
28.98	782	-15.3	-0.019591	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	782	8.8	0.011228	2.5
Extreme (50C)	782	-23.7	-0.030320	2.5
Extreme (40C)	782	12.3	0.015780	2.5
Extreme (30C)	782	24.6	0.031407	2.5
Extreme (10C)	782	-20.4	-0.026100	2.5
Extreme (0C)	782	0.2	0.000217	2.5
Extreme (-10C)	782	26.2	0.033517	2.5
Extreme (-20C)	782	-6.4	-0.008197	2.5
Extreme (-30C)	782	-14.4	-0.018427	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 16QAM, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
21.42	782	-8.8	-0.011304	2.5
25.55	782	8.7	0.011176	2.5
28.98	782	-14.8	-0.018862	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	782	-3.7	-0.004668	2.5
Extreme (50C)	782	14.6	0.018645	2.5
Extreme (40C)	782	23.4	0.029910	2.5
Extreme (30C)	782	-30.2	-0.038619	2.5
Extreme (10C)	782	19.4	0.024795	2.5
Extreme (0C)	782	25.4	0.032519	2.5
Extreme (-10C)	782	-7.1	-0.009079	2.5
Extreme (-20C)	782	16.0	0.020512	2.5
Extreme (-30C)	782	2.3	0.002916	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.6 LTE BAND 25

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 25 QPSK, (CH 26365 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
21.42	1882.5	-2.7	-0.001440	2.5
25.55	1882.5	-13.9	-0.007394	2.5
28.98	1882.5	26.9	0.014284	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 25 QPSK, (CH 26365 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1882.5	0.1	0.000042	2.5
Extreme (50C)	1882.5	20.0	0.010629	2.5
Extreme (40C)	1882.5	-7.3	-0.003894	2.5
Extreme (30C)	1882.5	7.8	0.004159	2.5
Extreme (10C)	1882.5	19.5	0.010369	2.5
Extreme (0C)	1882.5	-17.4	-0.009243	2.5
Extreme (-10C)	1882.5	25.6	0.013572	2.5
Extreme (-20C)	1882.5	-10.5	-0.005599	2.5
Extreme (-30C)	1882.5	-18.7	-0.009928	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 25 16QAM, (CH 26365 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
21.42	1882.5	8.0	0.004250	2.5
25.55	1882.5	-2.8	-0.001498	2.5
28.98	1882.5	-17.9	-0.009487	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 25 16QAM, (CH 26365 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1882.5	-21.7	-0.011538	2.5
Extreme (50C)	1882.5	4.8	0.002560	2.5
Extreme (40C)	1882.5	10.1	0.005365	2.5
Extreme (30C)	1882.5	-11.7	-0.006210	2.5
Extreme (10C)	1882.5	-12.6	-0.006667	2.5
Extreme (0C)	1882.5	-9.7	-0.005153	2.5
Extreme (-10C)	1882.5	-15.2	-0.008064	2.5
Extreme (-20C)	1882.5	-15.3	-0.008106	2.5
Extreme (-30C)	1882.5	14.3	0.007612	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.7 LTE BAND 26

Band 26 A (814MHz~824MHz) QPSK,10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26A QPSK, (CH 26740 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
21.42	819	-23.9	-0.029206	2.5
25.55	819	18.4	0.022405	2.5
28.98	819	17.0	0.020781	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26A QPSK, (CH 26740RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	819	13.8	0.016838	2.5
Extreme (50C)	819	14.6	0.017814	2.5
Extreme (40C)	819	3.3	0.003968	2.5
Extreme (30C)	819	34.0	0.041477	2.5
Extreme (10C)	819	-25.3	-0.030867	2.5
Extreme (0C)	819	5.2	0.006337	2.5
Extreme (-10C)	819	10.4	0.012747	2.5
Extreme (-20C)	819	-0.1	-0.000110	2.5
Extreme (-30C)	819	-5.1	-0.006190	2.5

Band 26A (814MHz~824MHz) 16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26A 16QAM, (CH 26740 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
21.42	819	-18.3	-0.022308	2.5
25.55	819	-6.0	-0.007338	2.5
28.98	819	32.3	0.039451	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26A 16QAM, (CH 26740 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	819	-10.2	-0.012454	2.5
Extreme (50C)	819	19.4	0.023687	2.5
Extreme (40C)	819	12.6	0.015324	2.5
Extreme (30C)	819	10.9	0.013297	2.5
Extreme (10C)	819	9.6	0.011697	2.5
Extreme (0C)	819	-12.1	-0.014750	2.5
Extreme (-10C)	819	4.7	0.005702	2.5
Extreme (-20C)	819	16.3	0.019853	2.5
Extreme (-30C)	819	9.5	0.011551	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

Band 26B ((824MHz~849MHz) QPSK,15MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26B QPSK, (CH 26915 RB size 75 RB Offset 0 15MHz BANDWIDTH)				
21.42	836.5	17.7	0.021112	2.5
25.55	836.5	16.8	0.020036	2.5
28.98	836.5	8.4	0.010066	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26B QPSK, (CH 26915 RB size 75 RB Offset 0 15MHz BANDWIDTH)				
Normal (25C)	836.5	-24.2	-0.028954	2.5
Extreme (50C)	836.5	11.6	0.013819	2.5
Extreme (40C)	836.5	-21.8	-0.026037	2.5
Extreme (30C)	836.5	26.7	0.031931	2.5
Extreme (10C)	836.5	-18.1	-0.021650	2.5
Extreme (0C)	836.5	27.2	0.032504	2.5
Extreme (-10C)	836.5	14.7	0.017549	2.5
Extreme (-20C)	836.5	0.8	0.000897	2.5
Extreme (-30C)	836.5	21.9	0.026216	2.5

Band 26B (824MHz~849MHz) 16QAM, (15MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26B 16QAM, (CH 26915 RB size 75 RB Offset 0 15MHz BANDWIDTH)				
21.42	836.5	27.4	0.032696	2.5
25.55	836.5	28.6	0.034166	2.5
28.98	836.5	-2.6	-0.003156	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26B 16QAM, (CH 26915 RB size 75 RB Offset 0 15MHz BANDWIDTH)				
Normal (25C)	836.5	25.9	0.030986	2.5
Extreme (50C)	836.5	11.4	0.013664	2.5
Extreme (40C)	836.5	18.4	0.021937	2.5
Extreme (30C)	836.5	14.6	0.017454	2.5
Extreme (10C)	836.5	-12.5	-0.014967	2.5
Extreme (0C)	836.5	-13.5	-0.016127	2.5
Extreme (-10C)	836.5	-19.7	-0.023503	2.5
Extreme (-20C)	836.5	-13.7	-0.016402	2.5
Extreme (-30C)	836.5	18.9	0.022570	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication

10.8 LTE BAND 41

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 QPSK, (CH 40640 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
21.42	2595	25.8	0.009927	2.5
25.55	2595	20.7	0.007965	2.5
28.98	2595	-18.3	-0.007044	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 QPSK, (CH 40640 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2595	17.9	0.006913	2.5
Extreme (50C)	2595	-14.8	-0.005699	2.5
Extreme (40C)	2595	26.6	0.010254	2.5
Extreme (30C)	2595	31.0	0.011958	2.5
Extreme (10C)	2595	-23.3	-0.008987	2.5
Extreme (0C)	2595	-12.1	-0.004655	2.5
Extreme (-10C)	2595	25.0	0.009622	2.5
Extreme (-20C)	2595	21.1	0.008119	2.5
Extreme (-30C)	2595	-20.7	-0.007977	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 16QAM, (CH 40640 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
21.42	2595	6.4	0.002447	2.5
25.55	2595	-15.0	-0.005792	2.5
28.98	2595	-15.9	-0.006116	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 16QAM, (CH 40640 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2595	-1.7	-0.000659	2.5
Extreme (50C)	2595	-21.8	-0.008389	2.5
Extreme (40C)	2595	31.7	0.012197	2.5
Extreme (30C)	2595	-6.5	-0.002505	2.5
Extreme (10C)	2595	3.1	0.001175	2.5
Extreme (0C)	2595	-25.9	-0.009988	2.5
Extreme (-10C)	2595	22.0	0.008493	2.5
Extreme (-20C)	2595	20.3	0.007803	2.5
Extreme (-30C)	2595	-16.8	-0.006474	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.9 LTE BAND 66

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
21.42	1745	-27.3	-0.015656	2.5
25.55	1745	-16.3	-0.009358	2.5
28.98	1745	12.7	0.007301	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	-8.7	-0.005003	2.5
Extreme (50C)	1745	2.7	0.001564	2.5
Extreme (40C)	1745	-13.4	-0.007673	2.5
Extreme (30C)	1745	-5.6	-0.003232	2.5
Extreme (10C)	1745	17.8	0.010189	2.5
Extreme (0C)	1745	-13.5	-0.007731	2.5
Extreme (-10C)	1745	-20.5	-0.011759	2.5
Extreme (-20C)	1745	-13.4	-0.007662	2.5
Extreme (-30C)	1745	-14.2	-0.008138	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
21.42	1745	0.8	0.000447	2.5
25.55	1745	-17.5	-0.010011	2.5
28.98	1745	-4.0	-0.002298	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	-15.0	-0.008602	2.5
Extreme (50C)	1745	-19.0	-0.010905	2.5
Extreme (40C)	1745	17.1	0.009788	2.5
Extreme (30C)	1745	11.9	0.006808	2.5
Extreme (10C)	1745	-24.3	-0.013920	2.5
Extreme (0C)	1745	20.2	0.011570	2.5
Extreme (-10C)	1745	31.0	0.017788	2.5
Extreme (-20C)	1745	-8.5	-0.004860	2.5
Extreme (-30C)	1745	-19.2	-0.010986	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

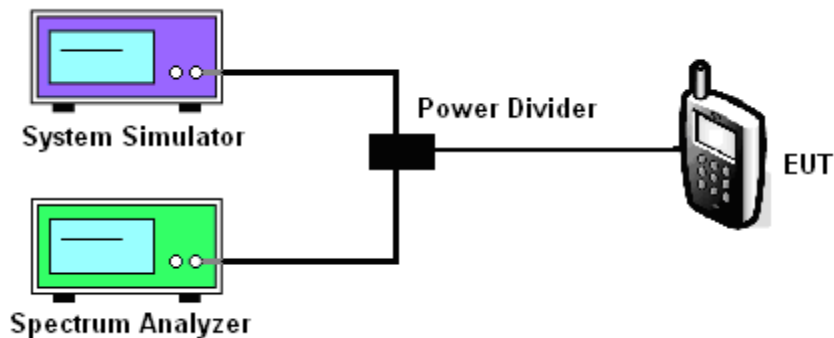
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. For LTE operating modes:
 - a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
 - b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.

11.4 Test Setup



MODES TESTED

- LTE Band 2
LTE Band 4
- LTE Band5
LTE Band 12
LTE Band 13
LTE Band 25,
LTE Band 26,
LTE Band 41,
LTE Band 66

Test data reference attachment.

----END OF REPORT----